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ABSTRACT

A group of American university facility planners and architects paid a 2-week visit in September 1987 to eight universities in five countries in order to study and explore European campuses at first hand. A description of the tour illustrated by numerous color photographs of the universities visited is presented in this report. Both the visitors and their hosts in each country had attended a symposium, held the previous year at Ohio State University, on preserving a quality environment for learning, after which the Europeans had been taken by their American hosts on a tour of seven campuses in the United States. Hence the Europeans were uniquely qualified to reciprocate by organizing meaningful tours of their own campuses, many but not all of which have a far longer history than any in the United States. The Catholic University of Leuven, Belgium, established in 1425, is the world's oldest existing Catholic university. Heidelberg University's recent 600th anniversary celebrates the stability of Germany's oldest university. Great Britain's oldest university, Oxford, was founded in the 13th century; an interesting fact for Americans is that a property in Oxford, England, is now the home of the Williams-in-Oxford program for Williams College in Williamstown, Massachusetts. In Sweden, featured universities are Uppsala University, founded in 1477, and the University of Stockholm, founded in 1878, with a new campus north of the city, called the Frescati campus, completed in 1971. The University of Copenhagen, Denmark, was inaugurated in 1479 but in a radical break from the past, students there now have enormous governing power. Among other new developments, the Panum Institute that houses the University of Copenhagen's Royal Dental College and its medical research and teaching facilities was completed in 1986. The Technical University of Denmark, founded 150 years ago, has been at its present site, an old airfield 10 miles north of Copenhagen, since 1973. An addendum to the report contains an overview of "The Ohio State University Plan for Improving the Quality of the Campus Environment," originally published in the report of the 1986 symposium at Ohio State University. (MLF)

THE BEST-LAID PLANS:

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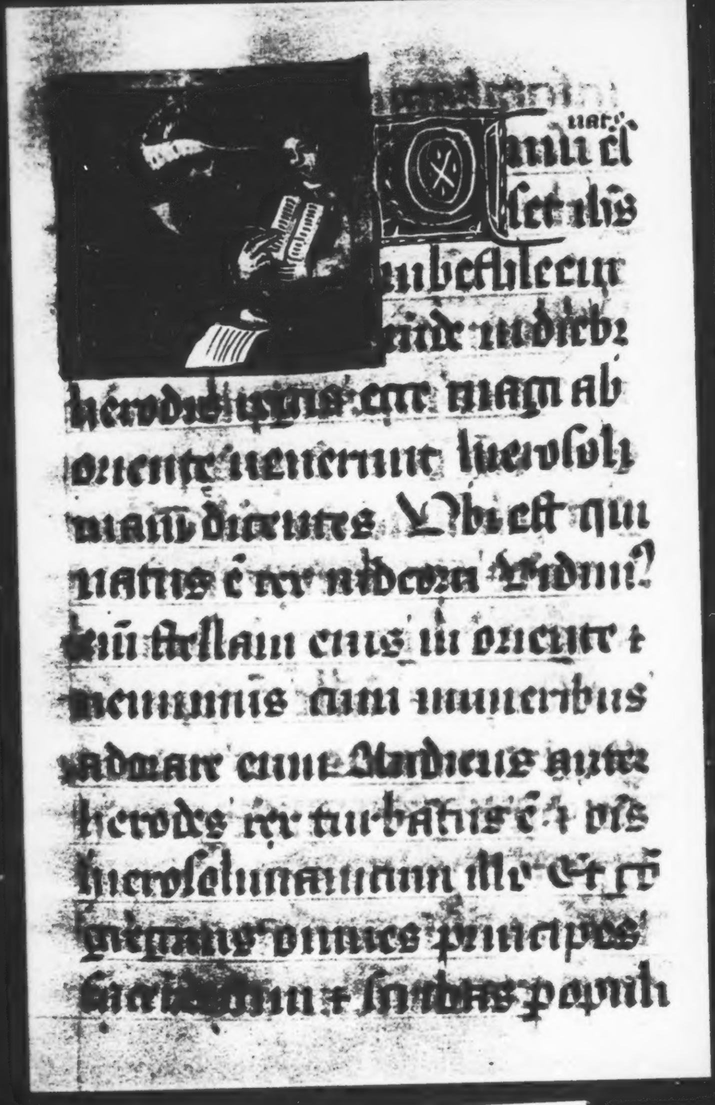

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EA 024 685

THE BEST-LAID PLANS:

Components of Quality Campus Environments in Europe

THE OHIO STATE UNIVERSITY
Office of Business and Administration

Text by Carole Gerber

Photos by Tom Burns

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On the cover: From a 15th century French Book of Hours in the Special Collections of The Ohio State University Libraries. Photo by Lloyd Lemmermann.

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PREFACE

The Best-Laid Plans: Components of Quality Campus Environments in Europe is based on a two-week visit in September 1987 to eight universities in five countries by facilities planners, administrators, architects, plant administrators and landscape architects from the United States.

With two exceptions, all university professionals on the visit had attended the First International Symposium on Preserving a Quality Environment for Learning held in Columbus October 1-3, 1986. Organized by the Office of Business and Administration of The Ohio State University, the symposium brought together for the first time American and European university facilities planners, architects, physical plant administrators and landscape architects to examine a variety of issues critical to maintaining quality campuses.

After the symposium, site visits to seven campuses hosted by Ohio State provided international visitors the opportunity to learn firsthand about a variety of American campuses. *The Best-Laid Plans: Components of Quality Campus Environments*, available through The Ohio State University Office of Business and Administration, describes the symposium and the two-week American campus tour, which included The Ohio State University, Kenyon College, the University of Michigan, the University of Virginia, Cranbrook Educational Community, Michigan State University and The College of William and Mary.

The European visit which took place the following fall in 1987 provided facilities planners and architects from American universities a closeup view of the campuses of our colleagues abroad. Because our hosts in each of the countries had attended the symposium and participated in the United States campus visits, they were uniquely qualified to organize relevant and meaningful tours of their own campuses that went far beyond simply viewing building facades.

We wish to thank our European hosts and their wives for the exquisite care each took to make our visit such an overwhelming success: In Denmark, Preben and

Ditte Larsen; in Sweden, Yngve and Ivonne Sahlin; in Great Britain, Roger and Nelly Clynes; in Belgium, Norbert and Bertha Iterbeke; and in Germany, Kurt and Getta Welle. In addition, deep appreciation is extended to Win and Kathy Wassenar of Williams College for arranging the tour of Williams' facilities in Oxford and a special visit to the Bodleian Library.

Our thanks also to the following administrators for so graciously leading us on fascinating tours that so often took us into otherwise inaccessible areas of their universities: Mr. Jan Ivar Mattsson, Assistant Vice President of Administration at the University of Uppsala; Dr. Staffan Helmfrid, President of the University of Stockholm; Mr. Kurt Welle, Bureau Director for Planning and Construction at the University of Heidelberg; John Rastrup Andersen, Director of Planning at the University of Copenhagen and the Panum Institute; Dr. Jan Jacobsen, Rector of the Royal Dental College, Panum Institute; Paul Carpentier, Administrative Director, Technical University of Denmark; and Norbert Iterbeke, Director of Facilities Planning, Catholic University of Leuven.

We also extend sincere appreciation to Luc Rombouts, a student at the Catholic University of Leuven who played the university's magnificent carillon for our group, and to Mr. Bent Nebelong, Chairman of the Copenhagen City Council for a delightful reception and tour of City Hall. Many other university colleagues also made significant contributions to these superbly organized visits. To them, also, our deepest gratitude.

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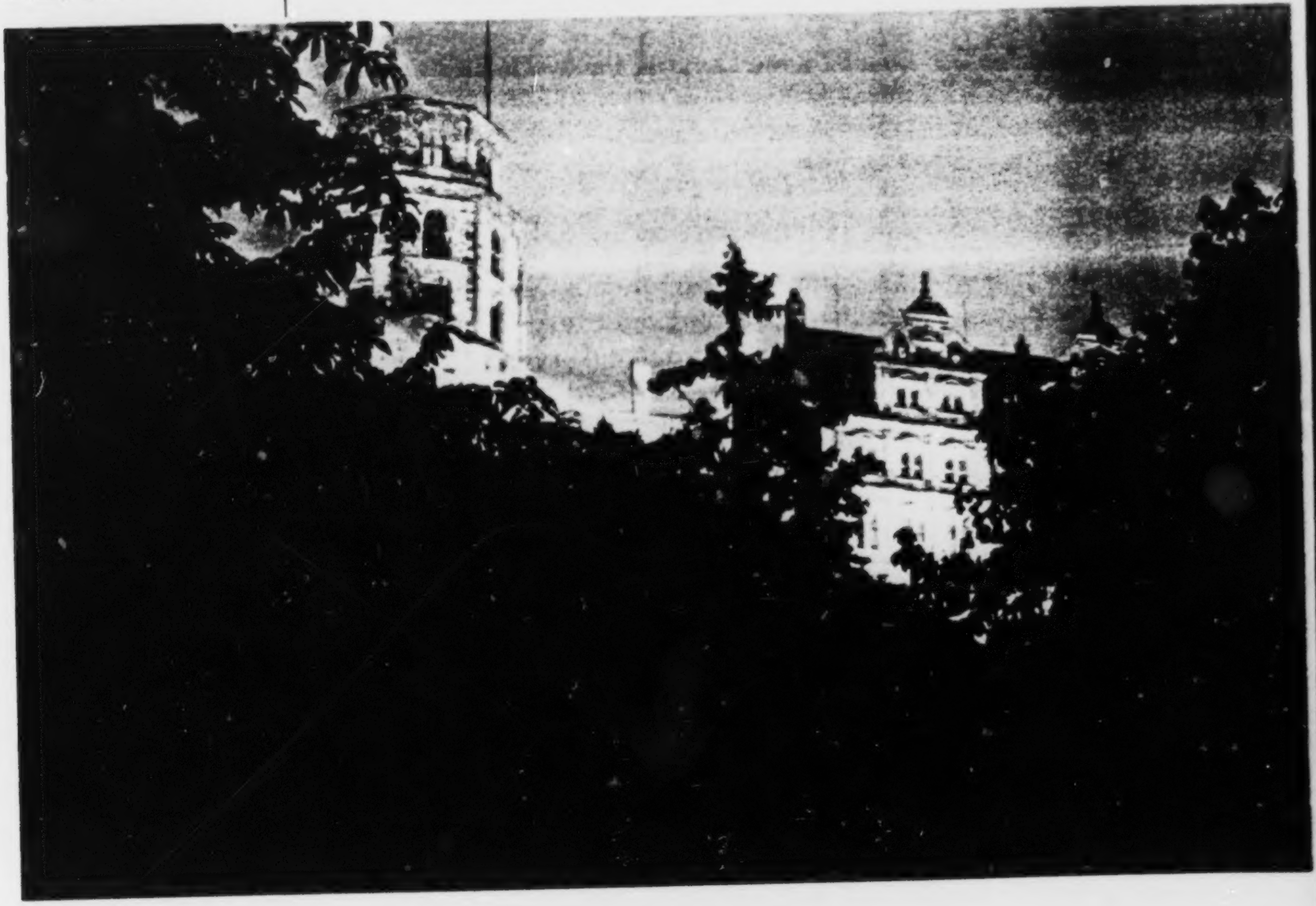
INTRODUCTION

Saturated in tradition and steeped in history, ancient campuses such as Heidelberg and Uppsala inspired a nearly wordless awe among American visitors last fall. We marveled at stone steps hollowed by centuries of use, at bells that have pealed for 600 years, at library shelves that hold original volumes of great literature.

The awe was followed by practical questions from those whose jobs it is to maintain and protect American university campuses: How are the books treated to prevent deterioration? Is it possible to simultaneously protect campus green spaces and also keep them accessible? Can the ideal of a pedestrian campus be maintained when grounds are spread throughout an urban area?

View of the magnificent Heidelberg Castle, which sets on a hill overlooking the university and the city of Heidelberg. (Slide courtesy of John Kleberg)



These and dozens of other issues of common concern provided for a nearly nonstop two-week commentary between European and American senior educational administrators, facilities planners, architects, physical plant administrators and landscape architects who together examined common problems and solutions to the preservation and maintenance of quality campus environments.

Of particular interest to those visiting from The Ohio State University was viewing the European campuses in terms of the recommendations developed for Ohio State by a committee charged with reviewing the quality of the campus environment.

For readers' convenience, an addendum to this publication features a full description of The Ohio State University Plan for Improving the Quality of the Campus Environment.

Briefly, the four major components of the plan—which is specific to Ohio State but is also applicable to other campuses—are:

1. Providing a visually and aesthetically unified academic community.
2. Developing a pedestrian campus.
3. Enhancing the university's sense of heritage and tradition.
4. Supporting the learning process.

The goals of this plan appeared to be universal among the campuses visited, from Oxford University, founded in the 13th century, to the new Frescati campus at the University of Stockholm, begun in 1971. Depending on the age and design of the campus some, of course, were easier to implement than others. Stockholm's Frescati campus, for example, was laid out for pedestrians—no private vehicles are allowed on the campus—but creating a sense of heritage and tradition with primarily new buildings was more difficult to achieve.

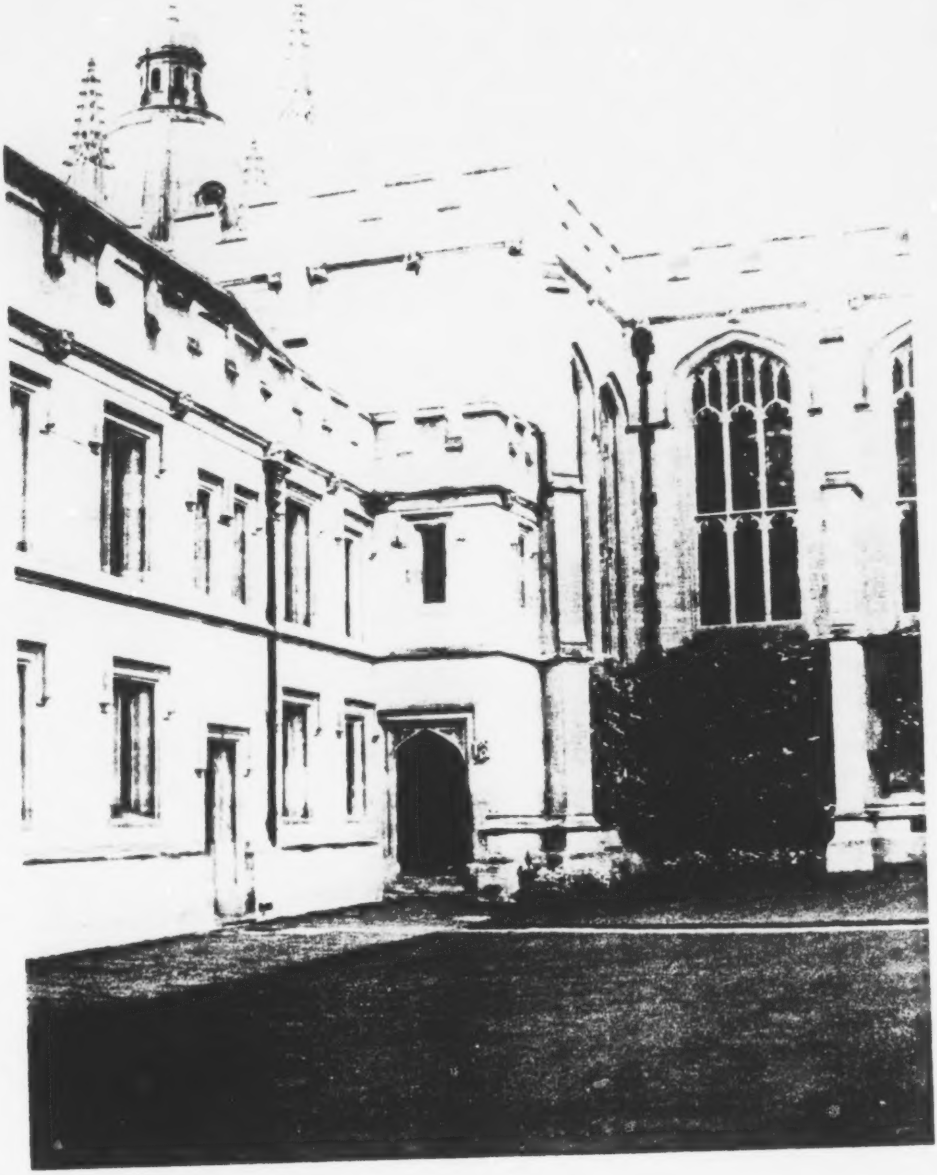
Because planners recognized this need to create some sense of tradition among the new buildings, Fredrik Blom's House, constructed in 1837 as a museum by a previous occupant of the grounds, was restored in 1975 and now houses some of the University of Stockholm's administrative offices.

At Heidelberg University, which is spread among three campuses in Old Town, Bergheim, and Neuenheimer Feld, creating a pedestrian environment has also been a challenge. To help pull these areas together, the university's most recent master plan calls for the creation of a homogeneous pedestrian area in Neuenheimer Feld along the northern bank of the Neckar River that will lead pedestrians into the center of the campus. A long-term goal is to provide boat transportation on the Neckar to further unite the three campus areas visually and aesthetically.

This challenge to unite diverse campus areas is one that most universities have faced. As a result of skyrocketing worldwide college enrollment following World War II, campuses in Europe and the United States expanded rapidly for 20 years, often putting up buildings that bore no resemblance to existing structures. Increase in student enrollment at the University of Copenhagen, which rose from 5,000 to 30,000 between 1956 and 1976, is typical of the growth surge with which European universities had to cope.

Simultaneous with the need to expand their facilities and increase their teaching staffs, universities also faced demands from students to revise admission policies and curricula—indeed, to overhaul the entire philosophical and administrative system on which European higher education had for centuries been based. The term "university," which in 12th century Europe originally meant a guild of scholars, took on a much broader meaning.

As a result of social and political changes following World War II, university education in many western European countries came to be viewed as a right paid for by the state rather than as a privilege only the wealthy could afford. As a result of political movements in the



Courtyard outside Christ Church, Oxford.

1960s, students at universities in Sweden, Denmark and elsewhere were granted voting rights on faculty and student councils that determine important university decisions.

Although similar activist groups were visible on American campuses, U.S. students did not gain the power of their European counterparts. Consequently, American visitors to the eight European campuses were quite interested in comparing the ways in which administrative decisions are made at universities in Europe and the United States—especially as they relate to maintaining quality campus environments.

One scholar has written: "Without the old universities' traditions of freedom for research and teaching, upheld against the onslaught of wars, despotism and more recently, fascism, the world would still be stagnating at the level of a medieval village." ("Let Us Rejoice," an editorial by Dr. Anthony R. Michaelis, editor, *Interdisciplinary Science Reviews*, Vol. 11, No. 2, 1986.)

Truly, American universities owe a great debt to those of Europe on which our own earliest colleges were patterned. To visit such distinguished institutions and learn firsthand from those who maintain their quality was both a wonderful adventure and a great honor.

CATHOLIC UNIVERSITY OF LEUVEN

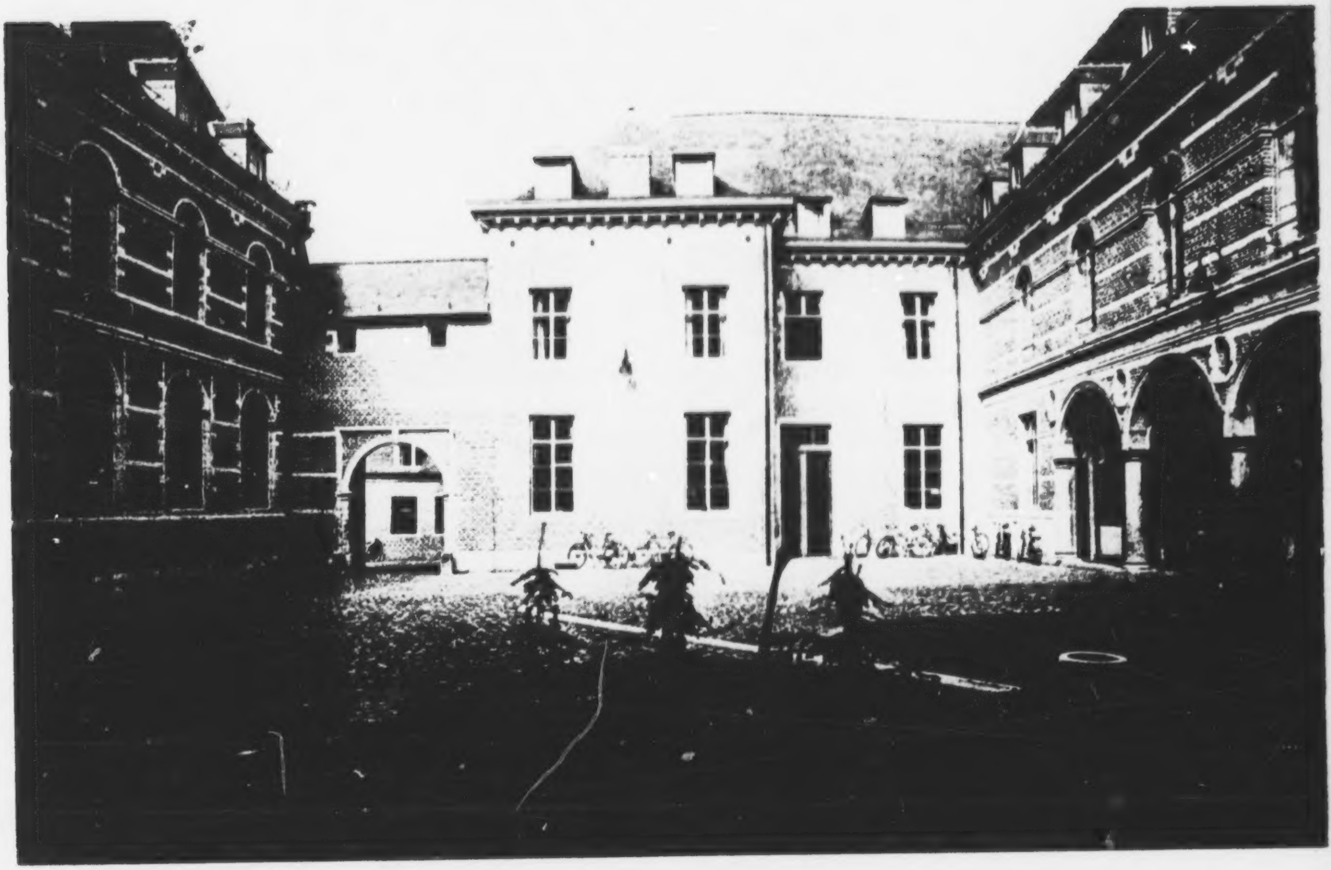
'A City Within a University'

A panorama of red roofs in the ancient city of Leuven.

During the course of its 563-year history, the Catholic University of Leuven, Belgium has had its campus plundered, its books burned, its doors closed for 35 years by the French government in the 18th century, and its central library destroyed twice during the two World Wars. In 1970, as a result of cultural and religious strife between Dutch and French-speaking Belgians, it was split into two universities—the Flemish Catholic University of Leuven and the French Universite Catholique de Louvain.

Yet the world's oldest existing Catholic university, established in 1425, has managed not simply to endure, but to thrive. The Catholic University of Leuven was recognized from the beginning as a leading intellectual center, and attracted some of Europe's greatest thinkers and teachers to its faculty. Located in a city famous for weaving, the university's first building was constructed by local craftsmen in 1317, a century before the school was founded. Named "Lakenhal," or Cloth Hall, it now houses the offices of the rector and other university administrators.

One of Belgium's 19 universities and colleges, the Catholic University of Leuven serves 23,800 students, including foreign students from 85 nations. Annual



View of the restored College Van Dale, one of 27 colleges built at the Catholic University of Leuven during the latter part of the 16th century. The College, which fell into decay, was restored in 1985 and now houses 100 students. (Slide courtesy of John Kleberg)

tuition is about 10,000 Belgian francs. Most classes are taught in Dutch, although some graduate courses are offered in English. Although independent of direct state control, the university does receive most funding from the government.

The Catholic University of Leuven is spread over three campuses: the Town campus for Human Sciences, the Arenberg Campus for Exact Sciences, and the Gasthuisberg Campus for Biomedical Sciences. There is also a branch campus in Kortrijk, 130 kilometers from Leuven, which was established in 1971 to serve undergraduates.

The Town Campus includes 68 acres and 45 university structures spread among the private and public buildings of the old town of Leuven. On this site are the faculties of theology, canon law, economics and applied economics, social sciences, arts and literature, psychology and pedagogical sciences and philosophy. Also situated on the Town Campus is the University Library which contains more than a million books.

First housed in Lakenhal, the library was founded in 1627 with 852 volumes of history and theology bequeathed to the university by a former student. During the preceding two centuries, Leuven students relied on bookshops and on the words of their professors who were regarded as living libraries. The present building, originally constructed in 1928, featured a carillon and clock in its tower that were gifts of 16 American engineering societies and numerous individuals. Except for its tower, the library building was destroyed during World War II and was later rebuilt on the same site.

For many years, however, the carillons in its tower were virtually unplayable until 1979 when a successful three-year fundraising effort led by an American professor provided the 12 million francs needed to renew and improve the carillon. Major support in the United States came from the engineering societies that had given the university the original carillon 50 years before. The 63-bell carillon, one of the finest of its kind in the world, has the largest range of any other carillon in Europe. Its pure tones extend beyond the streets of the Town Campus.

The Arenberg Campus, willed to the university after World War I from the estate of the Duke of Arenberg, is southwest of Leuven in the district of Heverlee. This campus is built on 300 acres and houses most of the buildings for the sciences, engineering and agriculture faculties, as well as the physical education complex, and a number of student dormitories. The jewel of this campus is the Arenberg Castle, originally constructed in 1446 and first remodeled with late-Gothic contours in 1520. Many other remodelings have been carried out over the centuries, and the Castle is now home to the School of Architecture.

The Gasthuisberg Campus for Biomedical Sciences is located on 120 acres on the western side of the border of the old town of Leuven. This campus houses many

The Arenberg Castle at the Catholic University of Leuven was built as a mansion in 1446 and first remodeled into a late-Gothic castle 1520. It became the property of the Duke of Arenberg in 1635. Neo-gothic additions were added over the centuries, along with some recent post-modern touches. Today the castle houses the School of Architecture.

modern buildings, including the Gasthuisberg University Hospital and Medical Facility Building, completed in 1985. Along with four older hospitals nearby, the new facility comprises the Leuven University Hospitals complex where university staff serve patients, train medical students and conduct scientific research.

The Catholic University of Leuven is the largest university in Belgium and one of the largest in Europe. Because of its size and importance to the Leuven community, where it is the major employer, the school has been described as a "city within a university rather than a university within a city."

A Quiet Oasis in an Ancient City— A Walk Through Leuven's Grand Beguinage

Visitors step back to medieval times when they enter the Grand Beguinage, where from the 13th to 18th centuries a Catholic lay order of about 300 religious women called Beguines worked and worshiped. "Beguine" is derived from the ancient word for beige, the color of the wool dresses worn by the the women belonging to this once-thriving order. Today only one Beguine lives in the Grand Beguinage.

No one knows precisely when Beguines originated, but by the 13th century there were several thousand of them in Europe living in communities called Beguinages.

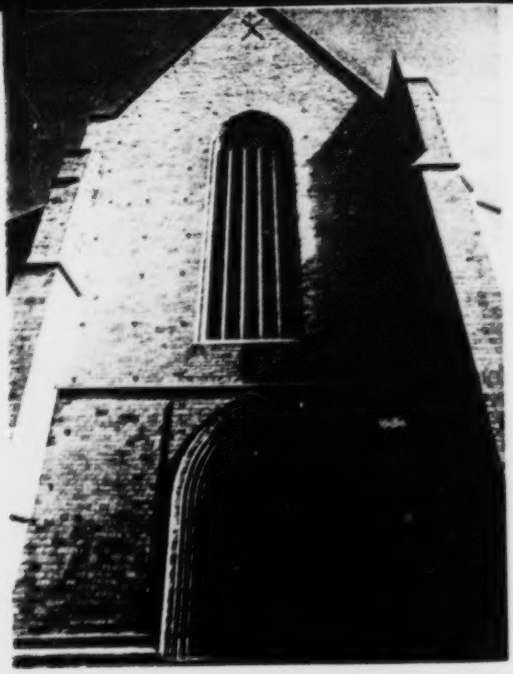
View of the one unrestored street in the Grand Beguinage, where 13 houses remain in a decayed state because of lack of funds.

A restored area in the Grand Beguinage where, between 1964 and 1975, 215,000 square feet of building space were restored by the Catholic University of Leuven.

It's believed the order began from necessity when women banded together to support themselves while the men were away fighting the Crusades to recover the Holy Land from the Moslems.

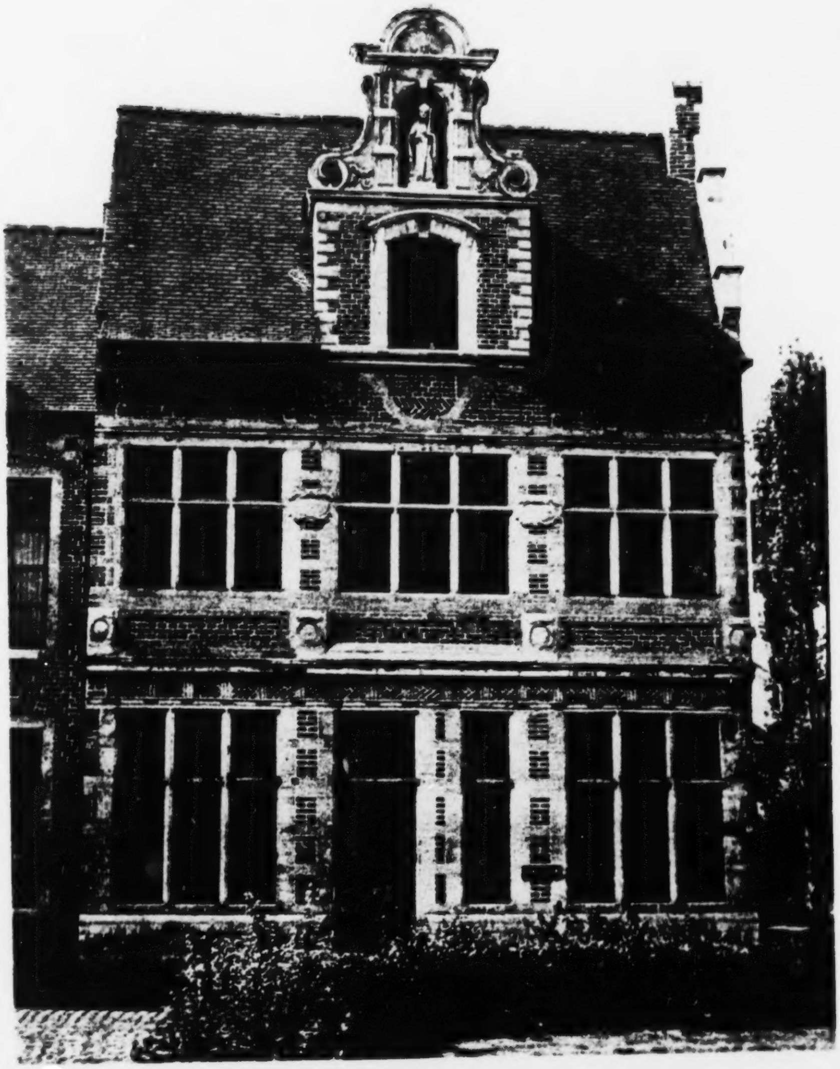
Because they did not take vows of chastity or poverty, the Beguines were free to marry if the opportunity arose, and to support themselves by tending the sick, sewing and praying for wealthy patrons. They were also allowed to own property and some bought the homes in which they lived. For its time, the Grand Beguinage was a democratic community. Instead of a Mother Superior, Beguines annually elected four of their peers to run the Beguinage. The Beguine leaders' duties included enforcing the rules of the order which were written by a Bishop.

The Grand Beguinage remained in good condition during the five centuries it was occupied by Beguines, but fell into decay after the women were driven out during the French Revolution. The area eventually fell under the jurisdiction of the City of Leuven's Welfare Board, which rented the buildings to the poor. Because



Restoration of the Beguine church, completed in 1983, features a new white limestone front handcarved in the old-fashioned way by craftsmen in the French-speaking area of Belgium.

Restored 14th century church in Grand Beguinage. A typical Beguine church, it features a small tower called a "roof rider" instead of a large bell tower. A large tower was unnecessary because all Beguines lived in the Grand Beguinage and didn't need loud bells to summon them to worship.



View of a restored 17th century home. Extensive restoration of most buildings included replacing the roof beams and doors and removing up to 80 coats of paint to expose the original brick.

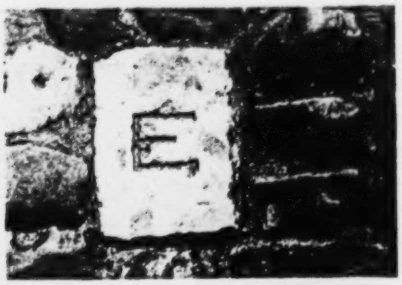
The River Dijle runs along the medieval city walls of the Grand Beguinage.

the rents charged were so low, the city could not afford to keep the houses in good repair. The Grand Beguinage, so lovingly tended by the Beguines, became a slum.

In the early 1960s when the city decided to move the residents to new welfare housing outside of Leuven, officials aware of its historical significance decided to sell the Grand Beguinage rather than tear it down. Several groups expressed interest, including an American developer who wanted to number every stone, tear it down and rebuild the Grand Beguinage near Boston.

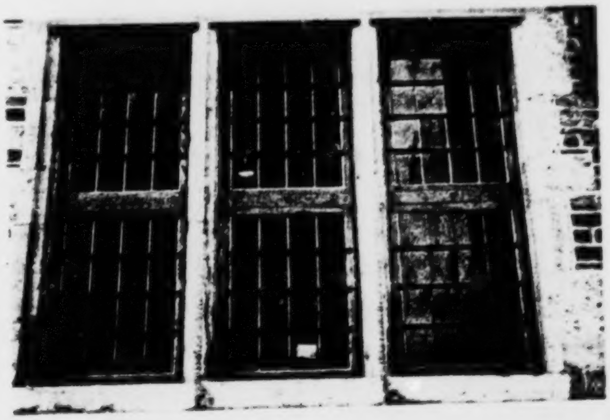
Instead, the property was sold to the Catholic University of Leuven in 1962, which in 1964 began restoring the area under guidelines established by the National Trust for Monuments and Landscapes. The guidelines called for selective rehabilitation measures that included a sensible combination of preservation, restoration and use of modern materials where appropriate, such as in the replacement of floors and roofs.

Between 1964 and 1975 at a cost of 272,928,000 Belgian francs the university restored 86 houses, an infirmary and an orphanage on the Grand Beguinage's 17 acres. Sewers and streets were also rehabilitated and the area was equipped with modern heating, lighting and plumbing. The restored 215,000 square feet of building space, which includes a faculty club and community center, now serves as relatively expensive rental housing for foreign students. Due to lack of funds, one street with 13 houses remains unrestored but is scheduled for repair.



A stone embedded in the cobblstone street is marked with a large "E" to show the location of the Beguinage's underground electrical lines.

Because they were repeatedly painted over through the centuries, many of the bricks of the original structures were well preserved. These original bricks were made using an ancient open air procedure that is responsible for their rich variety of colors. After they were exposed during restoration, the original bricks were coated with silicon to protect them from the elements.



The glass used in windows is blown by mouth.

UNIVERSITY OF HEIDELBERG

Aus Tradition in die Zunkunft

"Aus tradition in die zunkunft"—from tradition into the future—the theme of Heidelberg University's recent 600th anniversary—celebrates the stability and continuing worldwide influence of Germany's oldest university. From its inception, the University of Heidelberg has exhibited a tradition of internationalism: its first rector was from Belgium; its first students transferred from the Sorbonne.

The university is located on the Neckar River, at a site with a history dating back to prehistoric times. On display at Heidelberg University is the "Heidelberg jaw," found near Heidelberg in 1907 and documented to be between 400,000 and 500,000 years old.

Officially named Ruprecht-Karl University, it takes its name from the first names of its founder, Prince Elector Ruprecht I, and the Grand Duke Karl Friedrich of

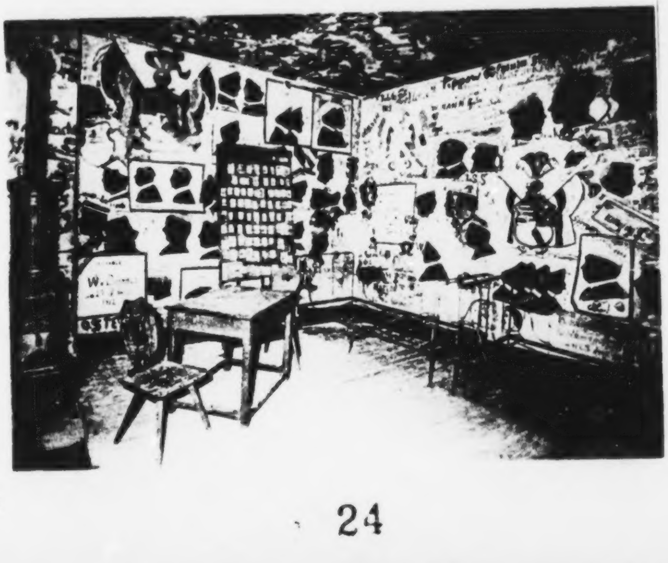
Exterior view of the entrance to the Universitats Bibliothek Heidelberg, the university's main library, which houses 2.2 million volumes. Built between 1901-1905, the architect was Josef Durm. The library is internationally famous for its display of a representative selection from the Bibliotheca Palatina, an extensive collection of rare volumes dating back to 1421 when Elector Ludwig III deeded many of his books to the university. The Palatina —the most valuable library collection in Germany throughout the Middle Ages —has been called "the mother of all libraries."

Baden, who in 1803 made it the first university in the state of Baden. Like many old European universities, Heidelberg University was modeled after the University of Paris. It was originally chartered in 1386 as a *studium generale*, offering all traditional courses of study except civil law.

Surrounded by the wooded hills of the Odenwald Forest, part of the campus lies in the old town of Heidelberg, the layout of which has remained basically unchanged since the city was founded eight centuries ago. Overlooking the old town on the slopes of the Konigstuhl are the ruins of the ancient Heidelberg Castle, whose earliest building dates from the 12th century.

The oldest building now standing at Heidelberg University is the "Alte Universitat" or "Old University," which was constructed in 1712 by architect J.A. Breunig on the site of an earlier building. Renovated in 1886 and 1983, its lower floors now house administrative offices. On its top floor is a student prison where, until 1914, students were incarcerated for as long as two weeks for offenses ranging from drunkenness to dueling.

Serving a term in the student prison was regarded as a mark of prestige rather than of shame. Incarcerated students, who traditionally ate only bread and water for two days, had food and drink brought to them by their landladies for the remainder of their sentences. Many inmates passed the time by literally "leaving their marks"



Student prison located in Old Town on top floor of Alte Universitat, the oldest building at the University of Heidelberg. Graffiti on the walls includes fraternity symbols drawn by students who considered the prison terms a mark of honor.

University buildings are scattered throughout Old Town section of the city of Heidelberg.

on the prison walls; their drawings have been preserved, much to the delight of modern visitors.

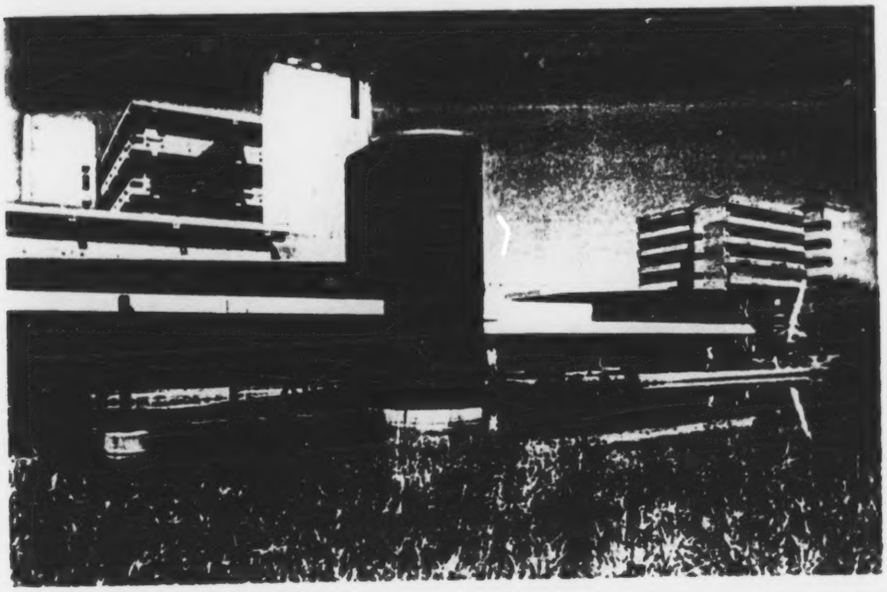
Alte Universitat, along with the university's main library and old humanities buildings, is located in the Old Town section of Heidelberg on narrow, winding streets that also house shops, taverns and homes. The centerpiece of this section is a pedestrian area around University Square featuring old and new university buildings, the library, the refectories, and the central

Meeting room located in the Alte Universitat. Built in 1712, the building was renovated in 1886 and again in 1983.

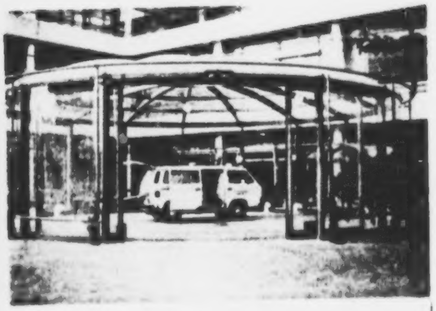
administration, with offices of the chancellor and the rector housed in Alte Universitat.

Other university buildings are located in two additional areas: in Heidelberg's old hospital district in Bergheim, where the university's first major expansion occurred in 1870; and in Neuenheimer Feld, the new campus where construction began after World War II on 350 acres reserved for natural sciences, mathematics and medicine. Once several clinics still located in Bergheim are moved to the new Head and Neck Clinic Building in Neuenheimer Feld, many of the old buildings in this area, now protected by the state as monuments, will be given a new face. In addition, an underground parking garage that will accommodate 330 vehicles will be built on the Bergheim campus.

Major buildings located in Neuenheimer Feld include the German Cancer Research Institute, the Institutes of Theoretical and Scientific Medicine, a variety of medical and surgical clinics, a sports complex, and the South Asian Institute, which houses 13 faculties whose research is directed toward the South Asiatic countries. Zoology, geology and other sciences are also located in Neuenheimer Feld.



The Institutes of Theoretical and Scientific Medicine are located on the Nuenheimer Feld, the 350-acre new campus at Heidelberg University. (Slide courtesy of Kurt Welle)



Covered entrance for ambulances at the medical complex located on the University of Heidelberg's new campus.

The university's latest master plan provides for the creation of a homogeneous pedestrian area in Neuenheimer Feld along the northern bank of the Neckar River that leads those on foot into the center of the campus. Eventually, planners would like to provide boat transportation on the Neckar to unite the three campus zones.

Together, the campuses in Old Town, Bergheim and Neuenheimer Feld are the sites for 250 structures, which combined occupy about 600,000 square meters of building space. Since 1959, the government has invested 1.2 billion Deutsche Marks in construction work. To ensure the University of Heidelberg's quality

The South Asian Institute on the Nuenheimer Feld campus is home to 13 faculties who conduct research related to countries in Southern Asia.

environment, the West German Ministry of Finance allocates more than $100 million Deutsche Marks annually for the maintenance and preservation of these buildings and grounds. Presently, the university's architecture office, headed by Kurt Welle, employs about 100 architects, landscape architects and engineers on various projects.

The physical expansion and ongoing maintenance of the campus is in response to the explosive growth the university has experienced over the past 30 years. Today, 28,000 students attend Heidelberg University—more than three times the number enrolled in 1960. Twenty percent study medicine, 20 percent study languages, 20 percent

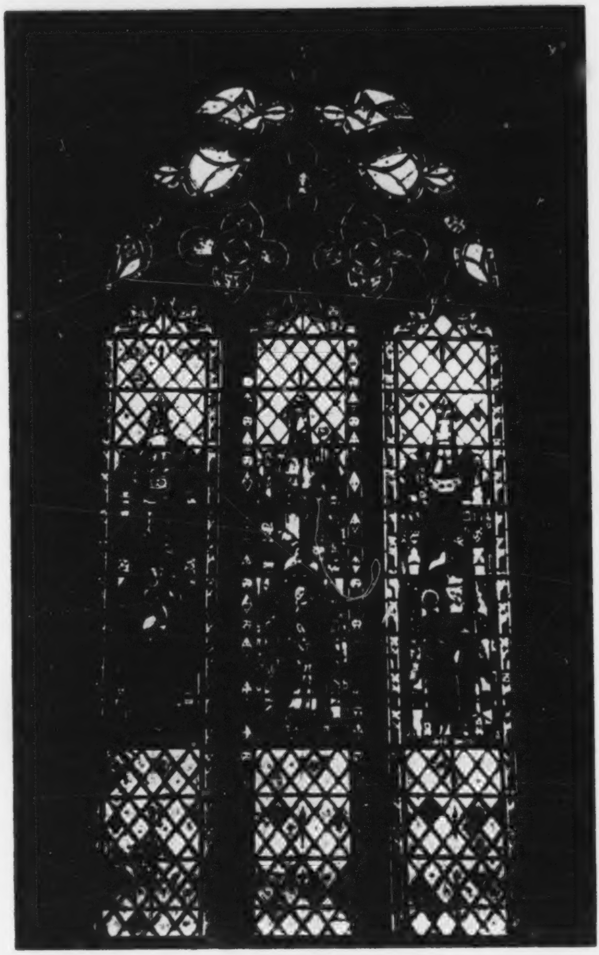
View of the University of Heidelberg's modern sports complex located on Nuenheimer Feld.

are enrolled in mathematics and natural sciences, 15 percent study economics and social sciences, and the remainder pursue miscellaneous degrees.

Because higher education is state run and controlled, German university students pay no tuition. However, students do have expenses. These include student activity fees paid to the Student Welfare Organization, medical insurance charges, and, of course, books and supplies. Because student housing is scarce and the cost of living in Heidelberg is high, rent is also a major expense.

OXFORD UNIVERSITY

Dominus Illuminatio Mea



Stained-glass window in Christ Church. The chapel at Christ Church is also the cathedral for the City of Oxford.

Since its founding in the 13th century by foreign students expelled from the Sorbonne, Oxford has been home to some of the world's greatest and most creative minds. Sir Walter Raleigh, author Lewis Carroll, poets T.S. Elliot and Matthew Arnold, William Penn, and Lord Randolph Churchill are among its scores of distinguished graduates. Although it is generally regarded with awe by outsiders—especially Americans—others have taken a more playful attitude toward the university.

In a 1902 novel by G.L. Calderon, *Downy V. Green*, Downy, a visiting American enamored with the university, exclaims: "It's a wonderful place is Oxford. . . . You must feel a thrill in your bones when you say to yourselves, 'I'm walkin' the streets which John Ruskin walked; I am livin' on the very same ward as once contained Arnold, Foude and Newman.' I would give a thousand dollars," said Downy, "to have been up here with Newman!"

None of the undergraduates looked as if he would have given a Greek grammar for it. Only one of them showed signs of life; he cleared his throat and moved uneasily in his chair for a few moments.

"Which Newman do you mean?" he asked.

"Why, Newman, sir; *the* Newman."

"Do you mean W.G. Newman who fielded point, or T.P. Newman who broke the roof of the pavilion in the M.C.C. match?"

All the freshman glared at Downy.

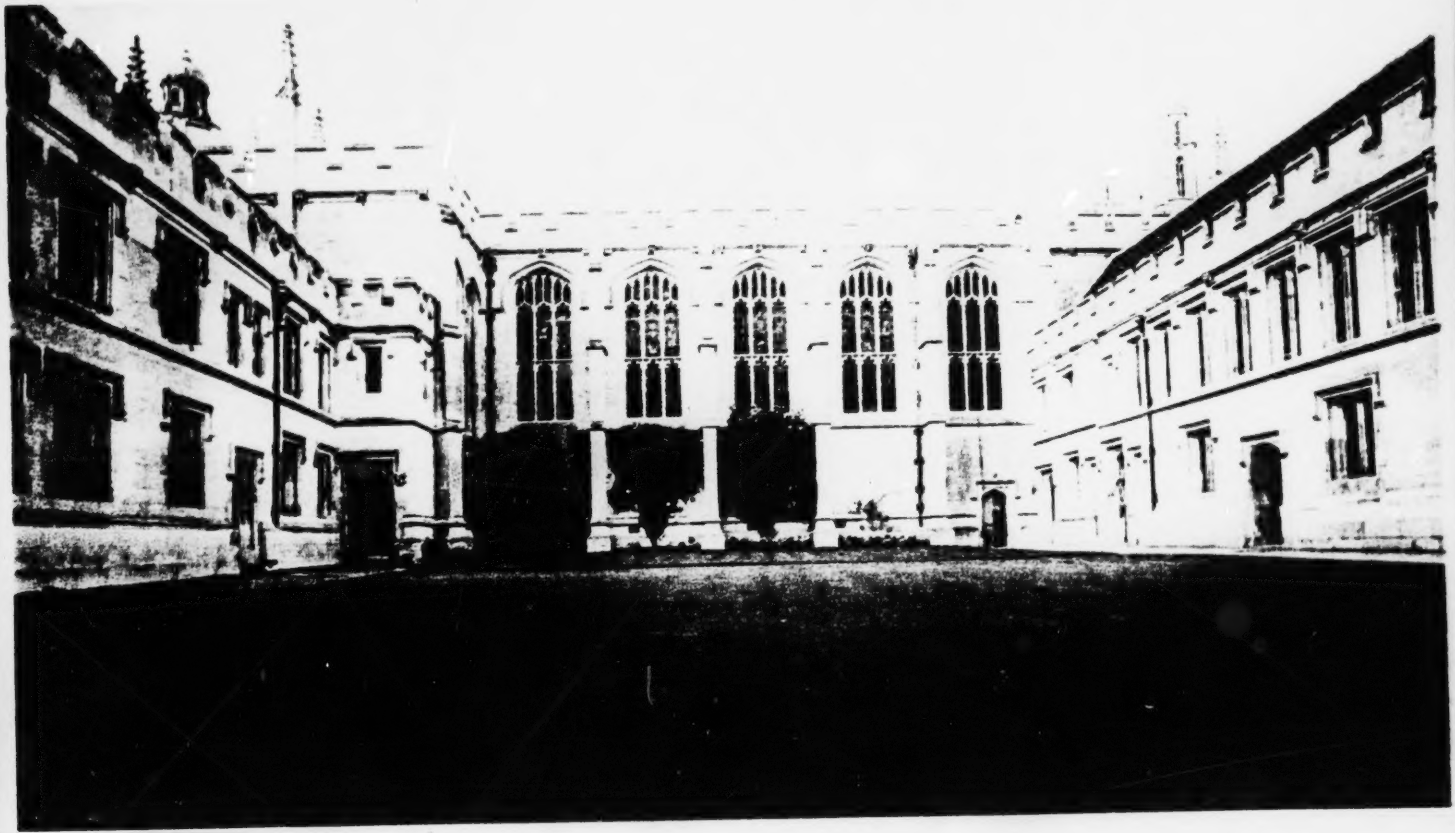
"Neither sir, neither; Cardinal Newman, the eminent divine!"

"Never heard of him!" said the bold freshman, and went on with his egg.

Entrance to Christ Church, Oxford. Re-founded in 1532 by Henry VIII as part of his rejuvenation of Oxford, Christ Church originally was called Cardinal College. Founded in 1525, it was the 13th college at Oxford.

Christ Churchyard. The tower at Christ Church, called Tom Tower, was designed by Christopher Wren.

Great Britain's oldest university is located about 50 miles northwest of London on the banks of the Cherwell and the Thames—known in Oxford as the Isis, a shortening of "Tamesis," the river's original name. Oxford consists of 35 colleges, each a separate entity with its own head and staff, and with separate admission procedures for undergraduates. However, it is the university, not the individual colleges, that grants all degrees. Oxford also has five private halls established by religious groups.



Tom Quad at Christ Church is the largest quadrangle at Oxford.

The first colleges for women were established during the late 19th century but the university did not grant them degrees until 1920. Today, the colleges of Somerville, St. Hilda's and St. Hugh's are for women only, while Oriel is for men only. The rest are coeducational.

The admission of women to this centuries-old male bastion was greeted with little enthusiasm in some quarters. Author Christopher Hobhouse, in his 1939 book, *Oxford*, wrote crabbily: "Though their numbers are small,

View of Christ Church Gardens.

a casual visitor to Oxford might well gain the impression that women form an actual majority. They are perpetually awheel. They bicycle in droves from lecture to lecture. . . ."

In the past 50 years, the popularity of bicycles seems to have spread to men students as well. On narrow lanes as well as on main streets such as the Broad and the High, men and women students alike ride among pedestrians.

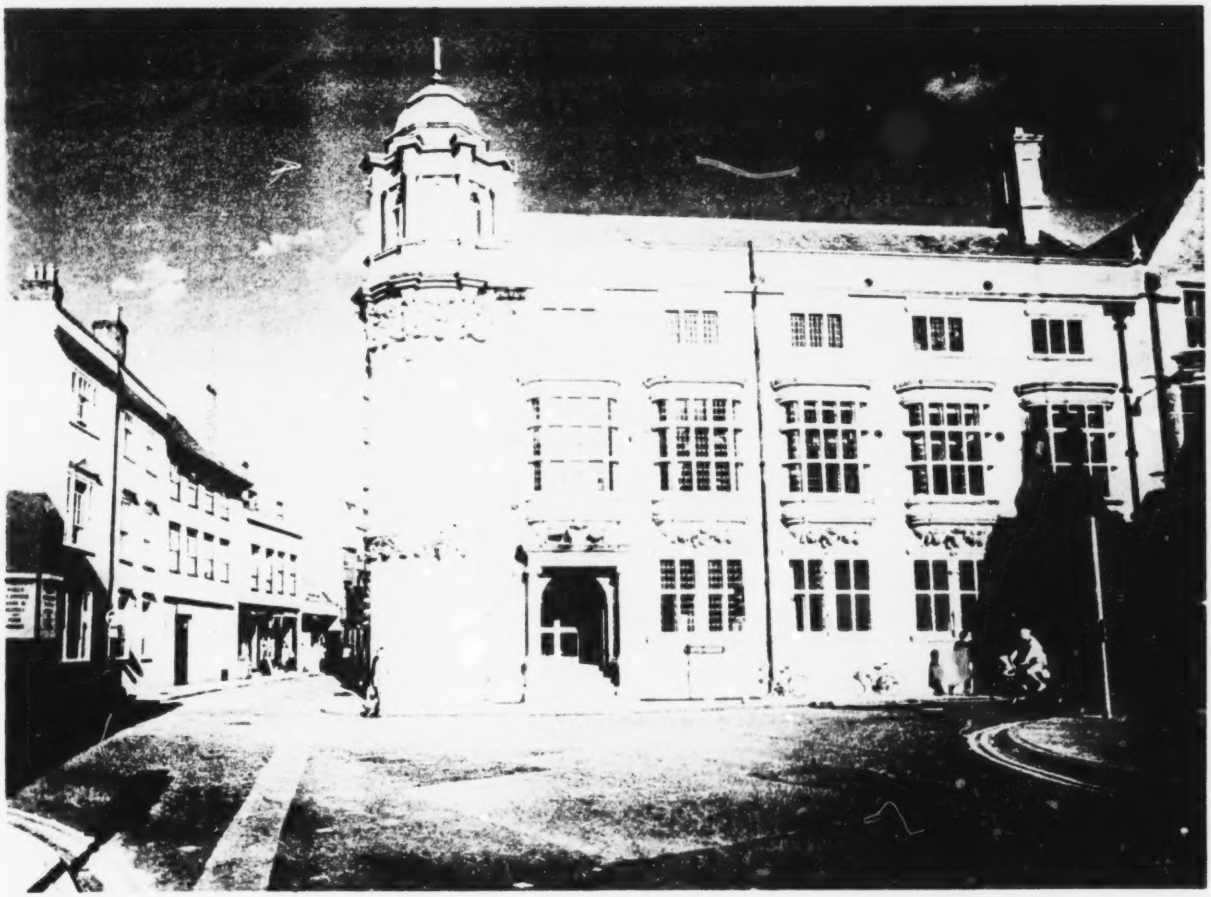
Like the students attending Great Britain's 45 other universities, those at Oxford are admitted by examination and the tuition of most is covered by government grants. Applicants rank their top three choices of Oxford colleges in order of preference and their admission exams are evaluated first by their top choice and then passed along to the other colleges for consideration if admission is denied.

Admission standards and levels of prestige vary greatly between colleges. Each, too, has its own style and character. As a whole, however, Oxford's student body is a very select group. Of the 292,000 fulltime British university students, only about 12,000 attend Oxford's 35 colleges where the method of instruction has remained constant for seven centuries: Each student is assigned a tutor who supervises, through weekly meetings, a course of independent study which includes reading, research and attendance at lectures of the student's choice.

Undergraduate Life

I Rise about nine, get to Breakfast by ten
Blow a Tune on my Flute, or perhaps make a Pen;
Read a Play 'till eleven, or cork my lac'd Hat;
Then step to my Neighbours, 'till Dinner to chat.
Dinner over to *Tom's* or to *Jame's* I go,
The News of the Town so impatient to know . . .
From the Coffee-house then I to Tennis away,
And at five I post back to my College to pray.
I sup before eight, and secure from all Duns
Undauntedly march to the *Mitre* or *Tuns*;
Where in Punch or good Claret my Sorrows I drown,
And toss off a Bowl 'To the best in the Town':
At One in the Morning, I call what's to pay,
Then Home to my College I stagger away.
Thus I tope all the Night, as I trifle all Day.

—*The Oxford Sausage*
edited by Thomas Warton, 1764



A quiet moment on an Oxford street.

Williams-in-Oxford The Junior Year Abroad

When administrators at Williams College learned from the late Lord Norman Crowther-Hunt, Rector of Exeter College, that four buildings and a parcel of land were for sale in Oxford, England, they leaped at this rare opportunity and made the purchase. Previously the site of a private language school, the property, which was purchased in 1984 for $750,000 and renovated in 1985 at a cost of $600,000, is now the home of the Williams-in-Oxford program for students' junior year abroad.

Williams College's relationship with Exeter College dates back to the establishment in 1928 of a special graduate scholarship program, the John Edmund Moody Fellowship. This history, combined with the fact that England is the most popular destination for Williams students studying abroad, has contributed to the success of this academically rigorous program, which admits 35 students annually.

No. 1 Moreton Road, home of the director of the Williams-in-Oxford program.

Renovation work on the four buildings, located at No. 1 Moreton, No. 145 Banbury Road and at Nos. 2 and 4 Lathbury Road, was carried out by a local firm, the Oxford Architects Partnership. Williams' director of Physical Plant Facilities, Win Wassenar, had overall responsibility for the project and flew to Oxford every few weeks to make sure that renovations were on track.

No. 1 Moreton Road, now the home for the Williams-in-Oxford director and his family, previously housed students in a series of small warren-like rooms on the first floor. Renovation work on the first floor consisted of clearing out and opening up the space to create a large living room, sitting room, dining room and kitchen.

Much thought was given to designing a traffic flow pattern suitable for accommodating the large groups of students, visiting faculty, and community people that the director and his family often entertain. Except for the bathroom, no first floor rooms at No. 1 Moreton have single doors that close off traffic flow. For example, double doors were installed between the sitting room and adjoining living room so that the space could be opened as needed to accommodate crowds. Upstairs, the shape of the rooms remained the same except that the hallway was extended out to the garage and a bedroom was enlarged.

Student dorm room upstairs at 145 Banbury Road. The furniture, based on a design used at Williams College, was built by local craftsmen.

Nos. 2 and 4 Lathbury Road, originally single family homes, had also been converted to student housing by the previous owners. Working with Win Wassenar, the Oxford Architects Partnership renovated the buildings into flats for visiting alumni and other guests. Among the major renovations at No. 2 was the clearing out of a bathroom, kitchen and storage area to make way for a small, well-designed flat featuring a kitchen, living room, small bedroom and bath. The remainder of the first, second and third floors were rehabbed as student rooms.

No. 4 Lathbury Road was also cleared out and renovated and now features two bedrooms, a living room, kitchen, library and bath. Few structural changes were required on students rooms located on the second and third floors at either Lathbury Road address. New bathroom fixtures, showers and carpeting were installed and, for fire protection purposes, doors were installed at

Courtyard at Williams-in-Oxford.

the second floor landings of both buildings. Smoke detectors were also installed in all four buildings.

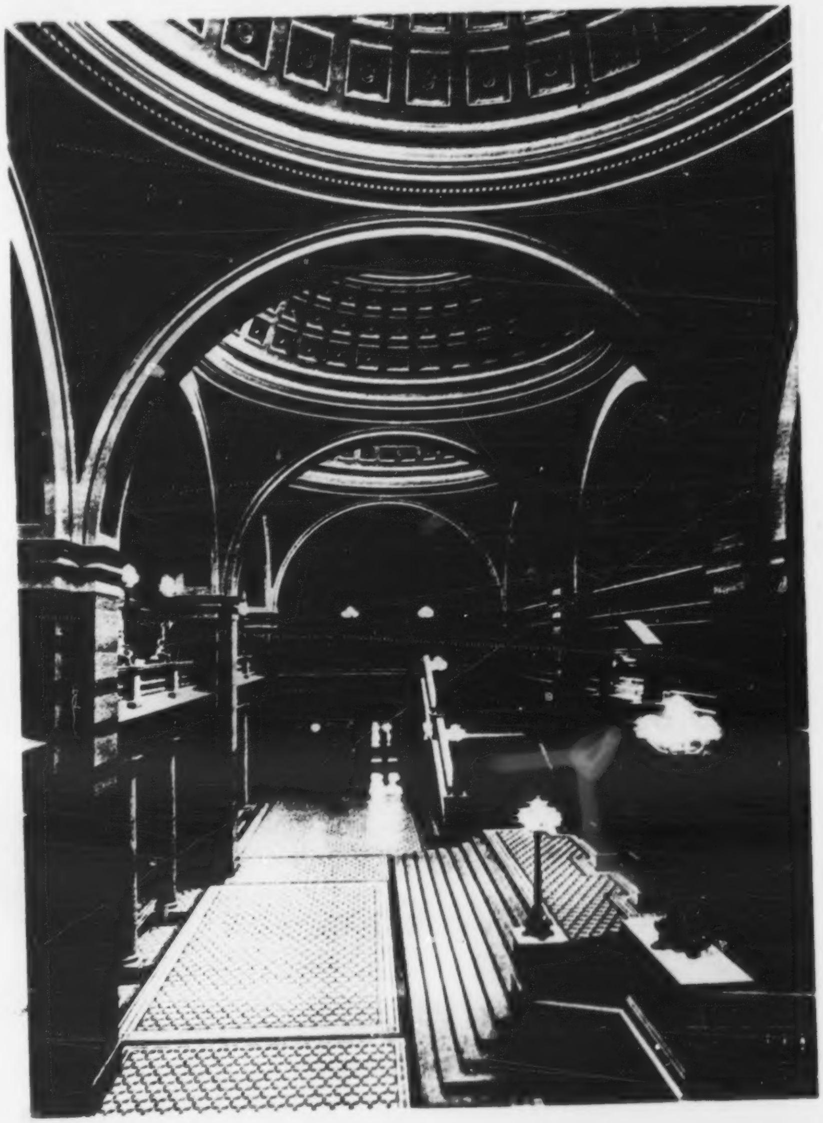
Student housing and the director's office are located at 145 Banbury Road, the first floor of which was also extensively renovated. Partitions on the outside wall of the kitchen were removed and sliding glass doors were installed to the outdoors. The large kitchen and dining room were opened up and a commons room was created off the dining area. A folding wall installed between the commons and dining area opens to create more space for large groups. A small kitchen for students' use was installed near the director's office at the front of the building and a space was added behind the large professional kitchen in the rear of the building to house the boiler room.

Upstairs, not much was changed structurally except for the addition of kitchenettes and laundries which mainly upgraded the existing spaces for students. New carpeting, doors, hardware and bathroom fitting were installed in the upstairs dormitory area. Furniture was built locally to furnish the dormitory areas based on a design used for relatively new student furnishings at Williams College in Massachusetts. Easy to maintain vinyl wallcovering—common in the U.S. but not widely available in the United Kingdom—was also found locally and installed where appropriate in all four buildings.

UPPSALA UNIVERSITY

Bildning är Mäkt

Bildning är mäkt—learning is power—has long been a maxim at Uppsala, the oldest and fourth largest of Sweden's seven universities. Students at Uppsala and at other universities throughout Sweden by law have enormous power: As a result of students' demands in the 1960s, they hold voting seats on the university's Board of Directors, the *Consistorium*, and on all other decision-making bodies of Swedish universities.



The splendid entrance hall of the University Main Building, frequently used for official receptions, is one of the grandest in Sweden.

Like all universities in Sweden, Uppsala is state owned and run, and Swedish citizens pay no tuition. Admission requirements are stringent, however, and only those select students who have graduated from a *gymnasium*, or senior high school, are admitted. Presently, about 15,000 undergraduates and 3,000 graduate students attend Uppsala University.

Founded in 1477 by Archbishop Jacob Ulvsson, Uppsala is located in the ancient town for which it is named, a city which for seven centuries has been a center for religious training and education, and continues to be the seat of power for the archbishop of the Church of Sweden. Despite its location in a cultural stronghold, Uppsala University—like many old European institutions—in its early years struggled to survive.

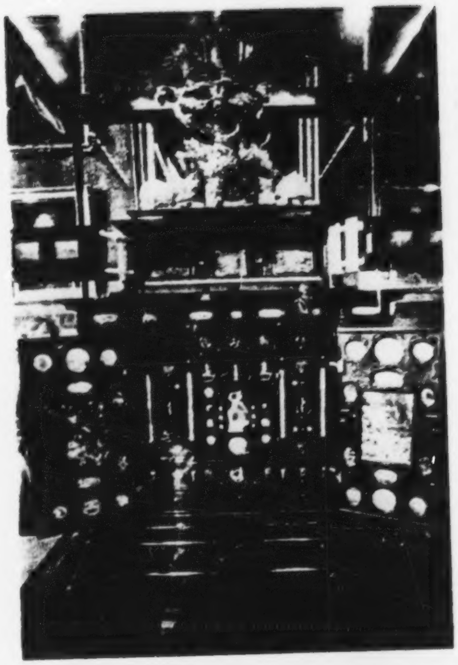
Designed by Herman Teodor Holmgren, the facade of the University Main Building features four female figures on its center representing Uppsala's original faculties of theology, law, medicine and philosophy.

Ceiling of the auditorium inside Uppsala's breathtaking University Main Building.

View of the magnificent Uppsala Cathedral, built in 1435 on the site of the original building, which burned in 1245. Then and now the largest church in Sweden, the Cathedral's spires tower 118 meters. For many years the Uppsala Cathedral was the country's tallest building.

BEST COPY [illegible]

The Augsburg Art Cabinet, built between 1625 and 1631, was purchased in 1632 by the city fathers of Augsburg, Germany as a gift to a special visitor, Swedish King Gustavus Adolphus, whose heirs gave it to the university in 1694. It is presently housed in the University Main Building. The cabinet, painted with scenes from the Old Testament, was intended to represent a universal museum in miniature. Contents range from the beautiful to the strange: tiny puzzles, pictures, musical instruments, combs and perfume bottles are displayed along with such curiosities as a piece of human skin and a monkey claw.



During the 15th and 16th centuries the fortunes of the university rose and fell at the whim of the ruling monarch. Around 1515 its doors closed in response to the wishes of King Gustavus Vasa, a Lutheran who would not support a university established to train Catholic priests. Gustavus's son, King Eric XVI, reopened the university 50 years later as a school for literature, a duty it struggled to fulfill for 30 years until the bubonic plague decimated the town and closed the school in 1592.

Uppsala again opened its doors the following year, its future guaranteed by a charter ensuring academic freedom. Thanks mainly to the personal donations of King Gustavus Adolphus, who reigned from 1594 to 1632, funds were made available to establish an internationally-renowned university. The first true main building of the university, completed in 1625, was named the Gustavianum in honor of this generous monarch whose estate assured the university 200 years of financial security. Despite many political upheavals since Gustavus's reign, the university's doors have stayed open and its reputation for scholarship and research have remained secure.

The Botanical Gardens, laid out in the mid-1700s as a royal garden, was a gift to the university from King Gustav III. The grounds now feature more than 11,000 species of plants. The building on these grounds was constructed at the end of the 18th century to honor Carl Linnaeus, a world-renowned Swedish botanist who taught at Uppsala.

Because of its long history, Uppsala, the oldest university in Scandinavia, is steeped in tradition. On the 30th of April each year, for example, students gather at the Uppsala Castle as they have since 1759 to celebrate the arrival of spring on Walpurgis Night. At 9 p.m. they hear the ringing of the castle's bell. For four centuries it has been rung daily at 6 a.m. and 9 p.m. in response to the wishes of Queen Gunilla, a 16th century monarch who directed Uppsala students to spend the 15 hours between the bells at study.

Today this far-flung campus, spread out on several estates through the city of Uppsala, features buildings and grounds of exquisite beauty. Among the most beautiful is the 101-year-old University Main Building, now used mostly for lectures, concerts and official receptions, which also houses the Department of History of Science and Ideas and the Department of Aesthetics. In addition, the *Consistorium* holds its meetings in this magnificent structure.

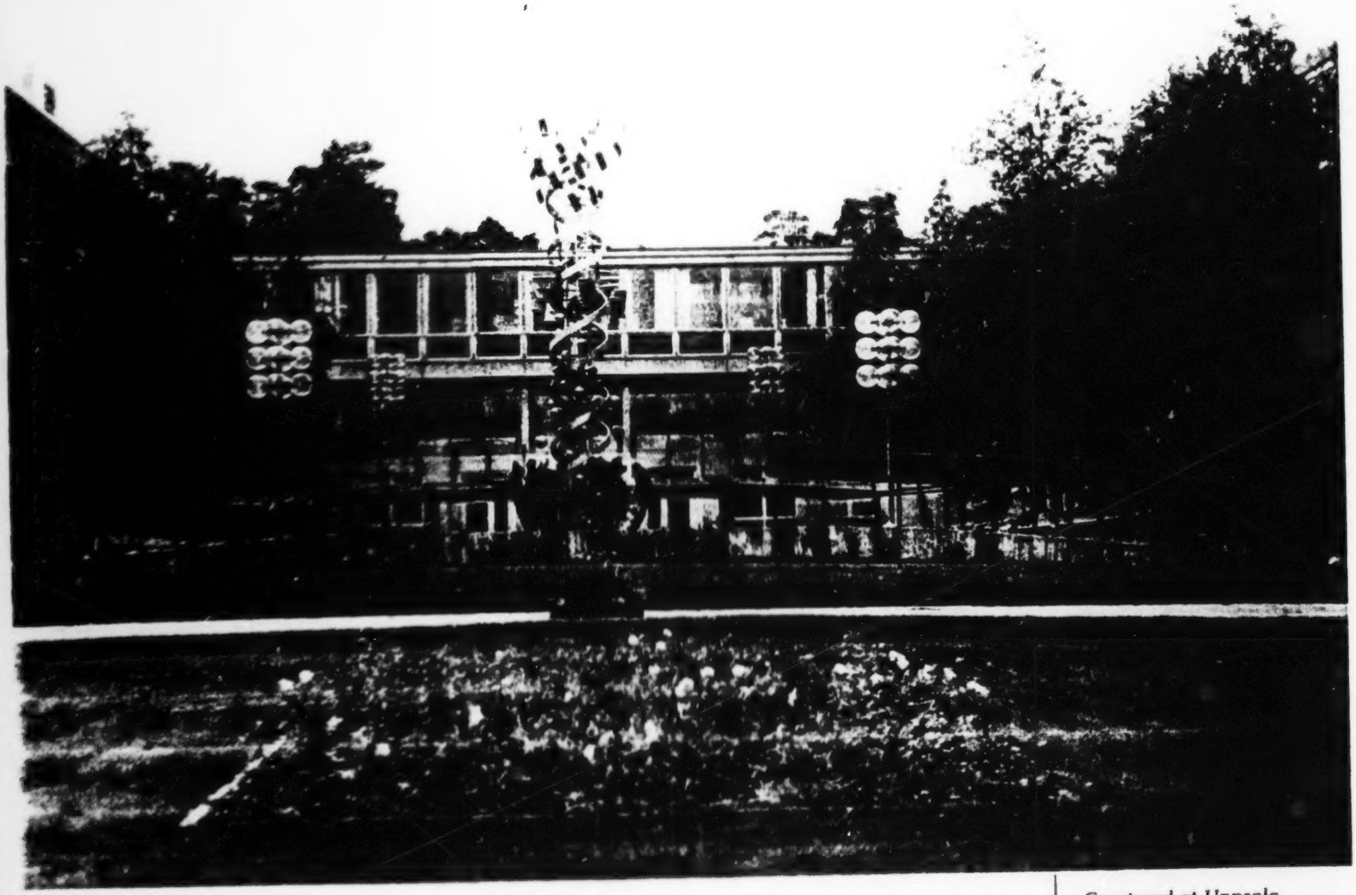
This modular wall unit at Uppsala's Biomedical Center can be easily modified to the meet changing needs of those using the space.

Uppsala's ancient anatomical theatre—one of three in existence—was built in the 17th century and seats 200 people. Dissections were open to the public.

Its exterior features a variety of materials, including granite, sandstone and brick. The interior houses an incredible collection of paintings and sculptures, as well as the art cabinet of Augsburg which was presented to King Gustavus Adolphus in 1632 and donated to the university by King Karl XI in 1697.

In sharp contrast to this traditional architecture is the university's ultra-modern, 460,000 square foot Biomedical Center. Planning for the Center began in 1964; construction was completed in stages between 1968 and 1984. The complex, which was designed by Stockholm architect Paul Hedqvist, houses 30 departments from the fields of pharmacy, medicine, natural sciences, agricultural sciences and veterinary medicine. Interiors feature movable sound-efficient walls as well as movable blackboards, bookshelves, cabinets and lab equipment so space can be easily modified to suit the changing needs of occupants.

The maintenance of Uppsala's Biomedical Center, Main Building and all other public buildings in Sweden is the responsibility of the National Board of Public Buildings. Headquartered in Stockholm, this government agency is also in charge of planning, design, maintenance, renovation and technical and administrative duties for all of Sweden's approximately 5,000 public buildings, and their grounds. Regional offices in four other Swedish cities are in charge of real estate administration and some project management during the planning and design stages of the construction of public buildings.



Courtyard at Uppsala University's Biomedical Center.

The 10-building *Polacksbacken* area of Uppsala University is set on a grassy plain where the S1 army regiment was previously housed. Before being used by the university, *Polacksbacken* was a military training area for centuries.

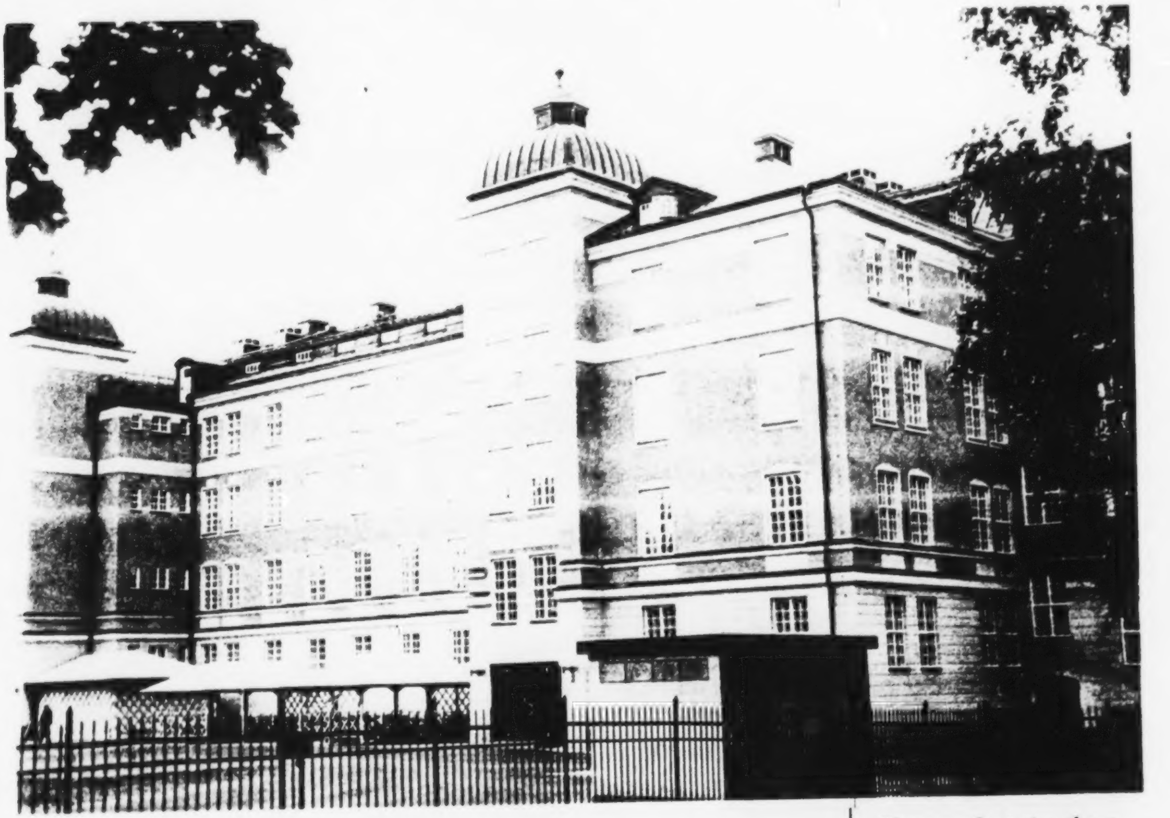
Uppsala University's Matematiskt Informationsteknologiskt Centrum—From Army Barracks to High Tech Complex

In 1985 when a Swedish regiment moved out of the *Polacksbacken* area near the campus of historic Uppsala University, officials from the National Board of Public Buildings made the space available to the university. Immediate renovation was begun on the 80-year-old buildings whose large interiors and high ceilings reflect an architectural style typical of Swedish public buildings at the turn of the century.

Now the three renovated buildings in the 10-structure complex house Uppsala University's Center for Mathematics and Information Technology. Fields of study and research within the Center include computer technology, electronics, mathematics, numerical analysis, mathematical statistics and graphic analysis. Previously, many of these disciplines were scattered throughout the campus before the first departments moved to *Polacksbacken* in early 1987.

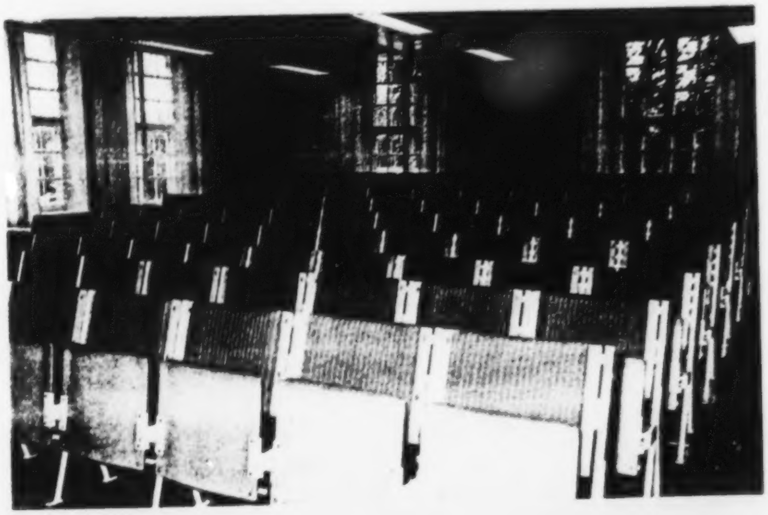
In addition, future space will be renovated in *Polacksbacken* for collaborative research and development projects between the university and industrial firms. Small spin-off enterprises and research and development sections of large companies will also be tenants.

Renovation work to modernize the buildings included lowering the ceilings, placing individual thermostats in each room and the addition of lockers and other built-ins where appropriate. Wiring and lighting have also been modernized and upgraded throughout the building to accommodate the many computers and other pieces of equipment used in the Center.



Close-up of exterior of one of the renovated buildings which houses Uppsala's Center for Mathematics and Information Technology in *Polacksbacken*.

Presently, about 600 employees and 1,200 students make use of the renovated buildings each day. Since the university offered its first course in computer science in 1972, rapid growth has occurred in this and related technical fields. The increase in the number of technical course offerings to Uppsala students and the concentration of computer science, engineering physics, mathematics, electronics and related fields in the *Polacksbacken* area reflects the Swedish government's decision to increase the number of technically-trained citizens.

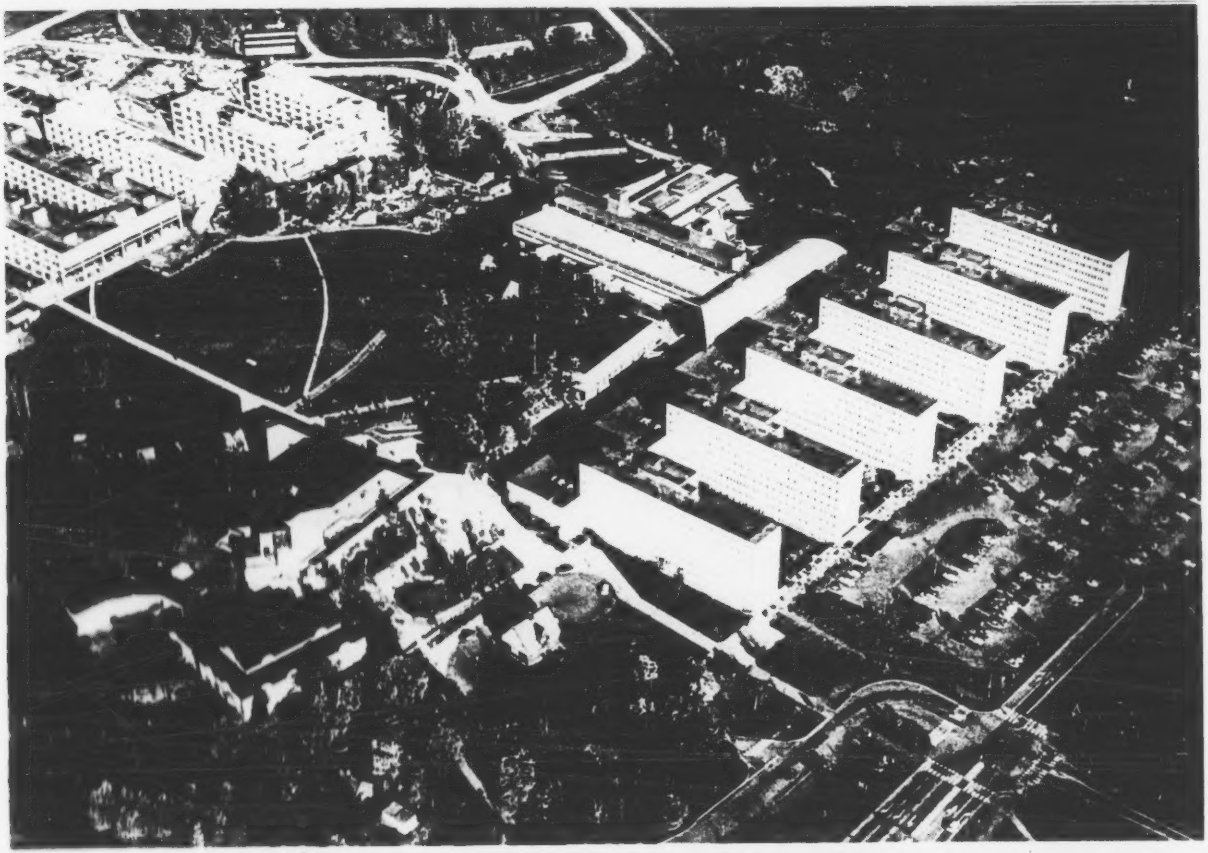


Old-fashioned windows create a traditional ambiance in this modern auditorium located in a turn-of-the-century building in Uppsala's Center for Mathematics and Information Technology.

A cozy atmosphere and high tech equipment co-exist beautifully in this computer center located on the top floor of a renovated building in *Polacksbacken*.

UNIVERSITY OF STOCKHOLM

From Central City to Royal Hunting Grounds



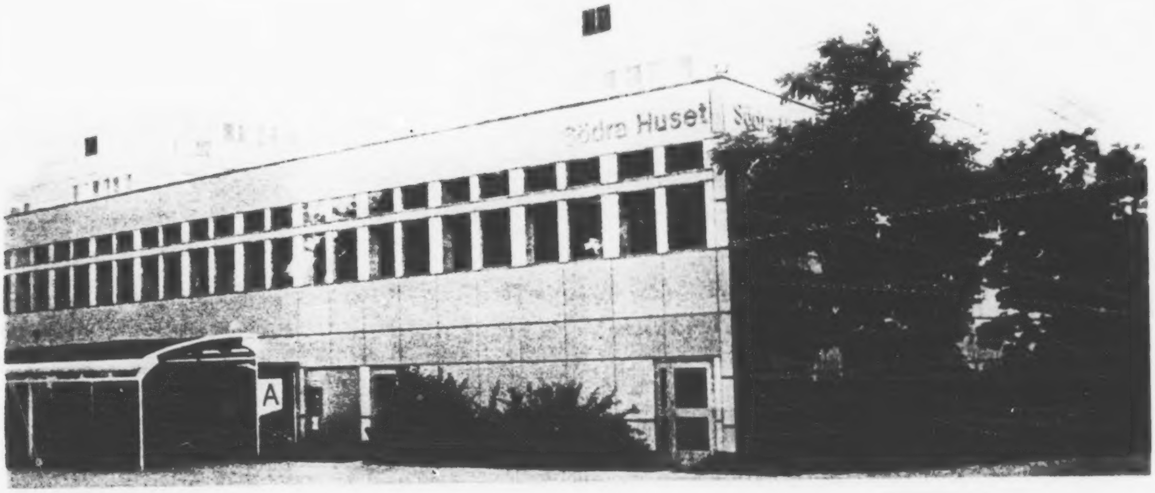
Aerial view of the new campus at the University of Stockholm. (Slide courtesy National Board of Public Buildings)

When Stockholm College, founded as a private institution in 1878, became a state university and changed its name to the University of Stockholm in 1960, administrators faced a difficult challenge: What to do about modernizing and organizing a school whose old buildings were scattered throughout the city of Stockholm.

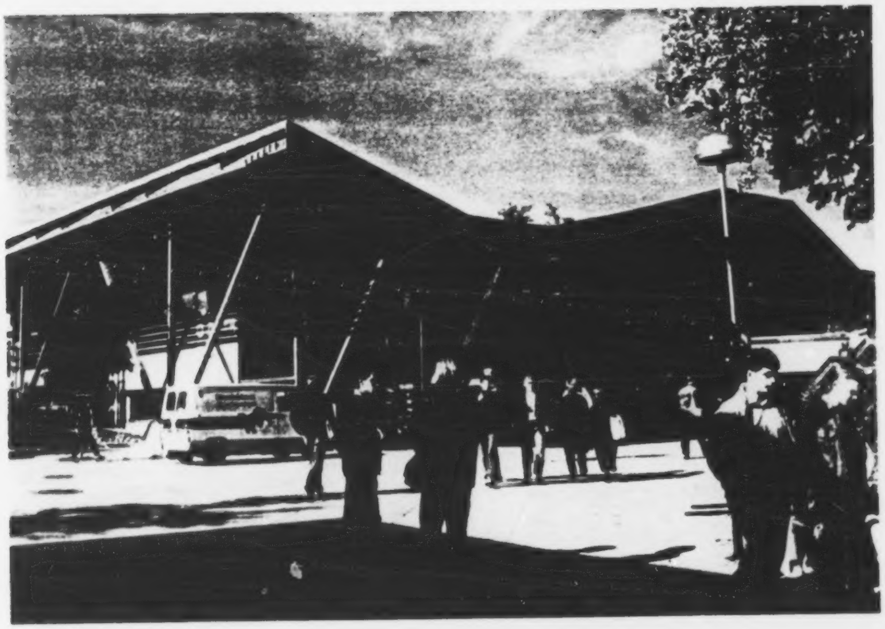
The solution, which took 10 years of planning, was the creation of a new campus north of the city on what in the 17th century had been royal hunting grounds. Called the Frescati campus after an 18th century Italian villa built on the property, the area—which consists of 150.370 square meters—was selected after a study by the National Board of Public Buildings showed it to be the most desirable location for the new campus.

Several scientific institutions and a botanical garden were already located in the area. Still, unlike the central city of Stockholm, the Frescati afforded plenty of space for new building construction. The winner of the architectural competition for the Frescati campus design was David Hellden. Because of spiraling enrollments, however, the number of students enrolled at the new campus was twice the number Hellden's space was designed to serve. Consequently, most of the winning design was scrapped.

Instead, six eight-story high rise buildings were quickly constructed, featuring a total of 36,000 square meters. The high rises have been roundly criticized for their unappealing design—University of Stockholm President Staffan Helmfrid described them during a campus visit as functional and aesthetic disasters. Because of poor design, a number of windows have popped out, making it necessary to build a covered walkway at the main entrance to shield pedestrians from falling glass.



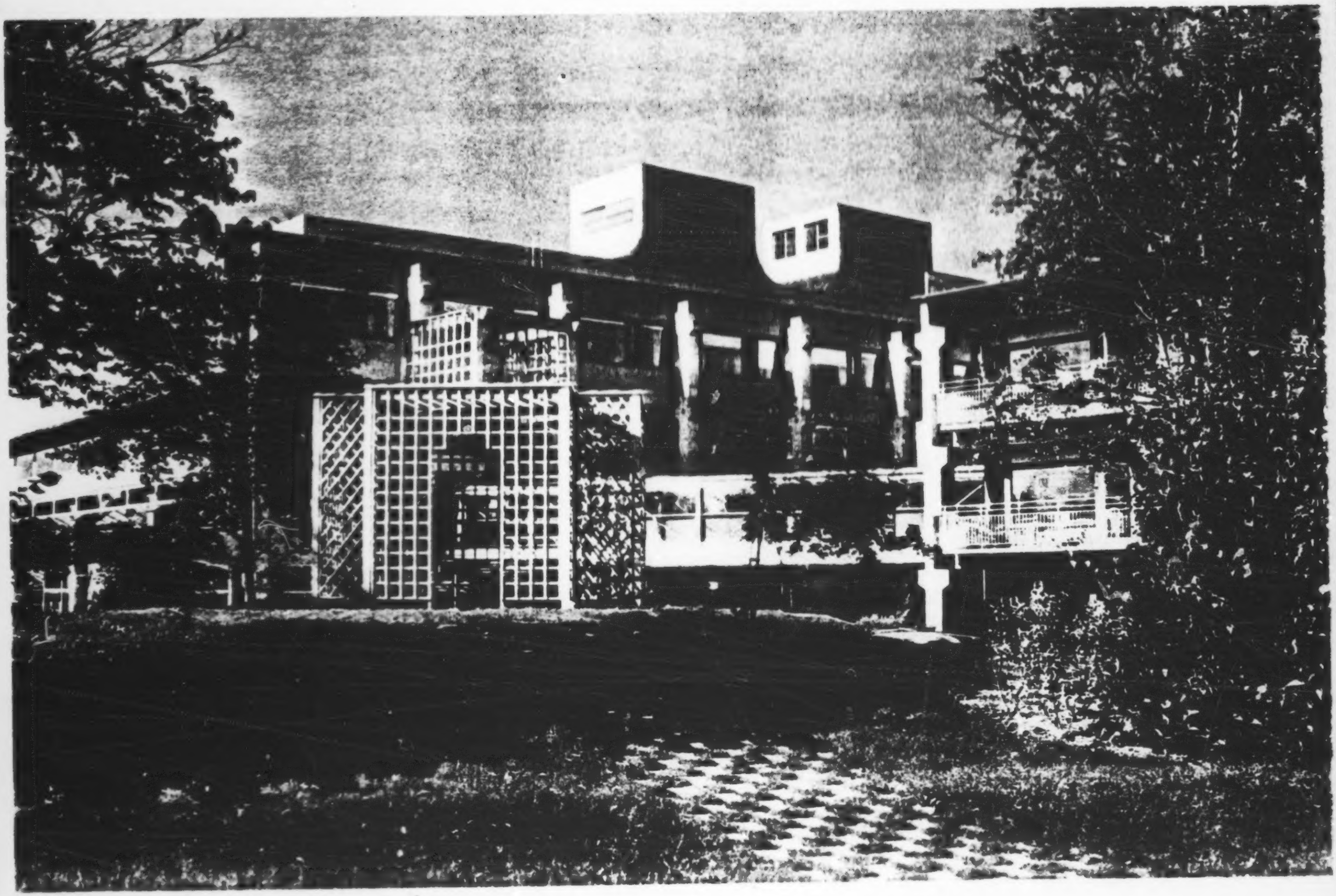
View of the main entrance and covered walkway of Sodra Huset, the largest structure on the Frescati campus.



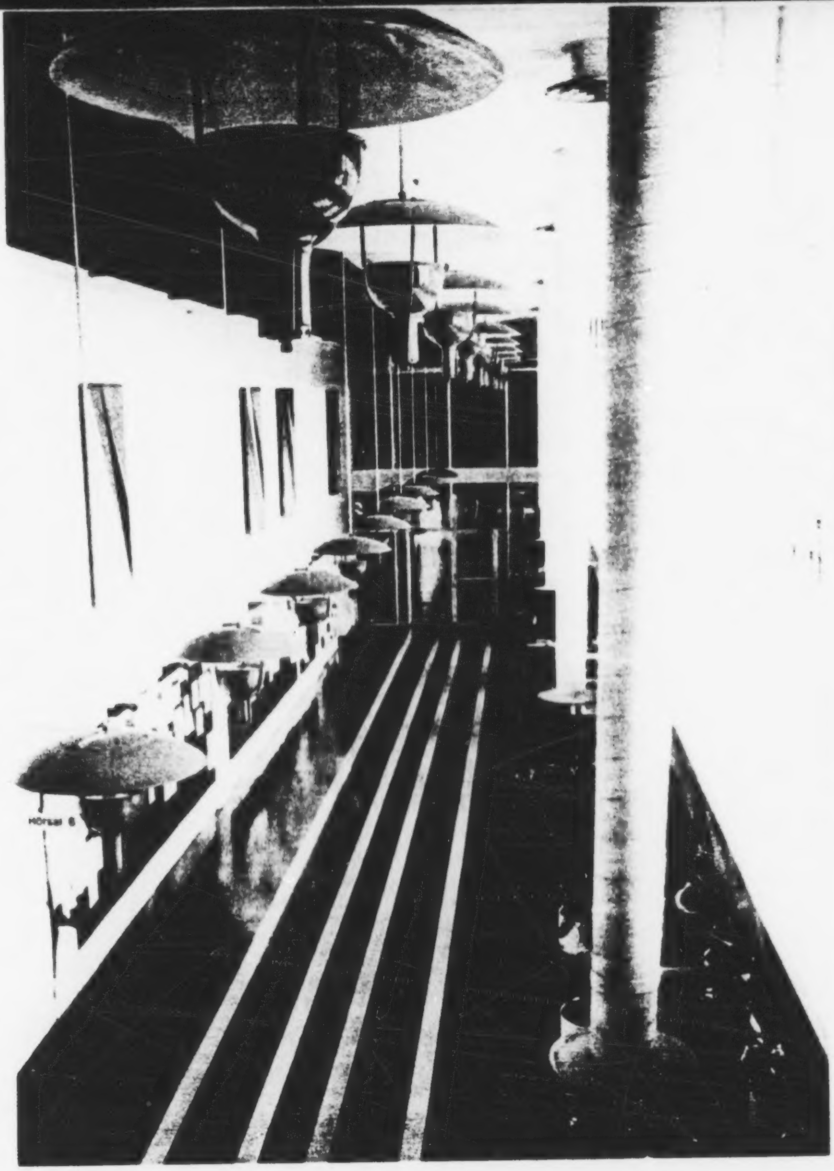
The Allhuset, which features a wide canopy roof, houses the student union. (Slide courtesy National Board of Public Buildings)

Construction of the new campus' two major buildings, the Södra Huset and the Allhuset, was completed by 1971. Södra Huset consists of the six parallel high rises connected by a three-story structure. The largest campus building, Södra Huset houses classrooms and offices for the departments of liberal arts, social research, social work, law and public administration. The Student Union is housed in Allhuset. Of architectural interest is the Allhuset's wide canopy roof and the Södra Huset's arched entrance hall, which provides the new campus' main public space—a brightly-lit area featuring a visible support system of wood and steel.

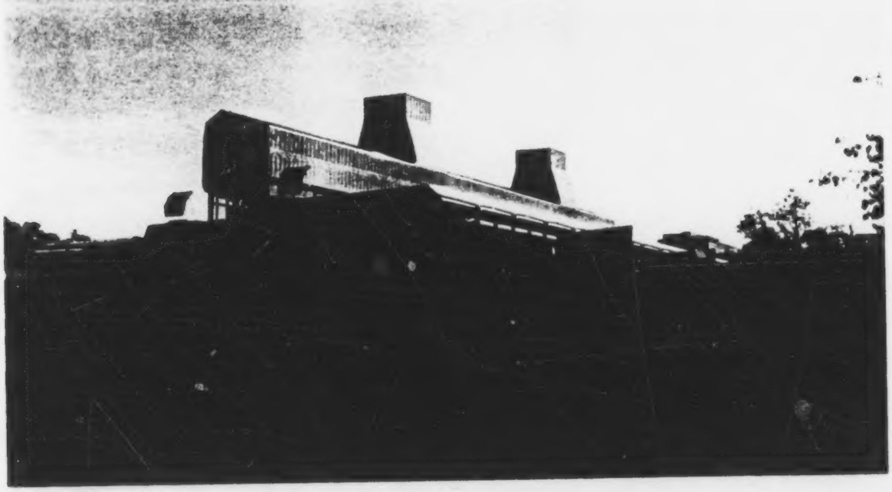
Linked to Södra House is a university library designed by Scottish-born architect Ralph Erskine, which opened in 1983. The library's innovative but functional design has been highly praised. The effective use of hard woods and daylight make all areas of the building aesthetically appealing and visually attractive. Laboratory buildings located on the northern edge of the Frescati campus have also received a much warmer reception than did the hastily planned and constructed high rise buildings to the south of campus.



Clean, functional lines and bright open spaces are characteristics of the Arrhenius Chemistry Laboratory on the University of Stockholm's Frescati campus. (Slide courtesy of Yngve Sahlin)



This expanse of hallway exemplifies the clean, stark design of many Frescati campus buildings.

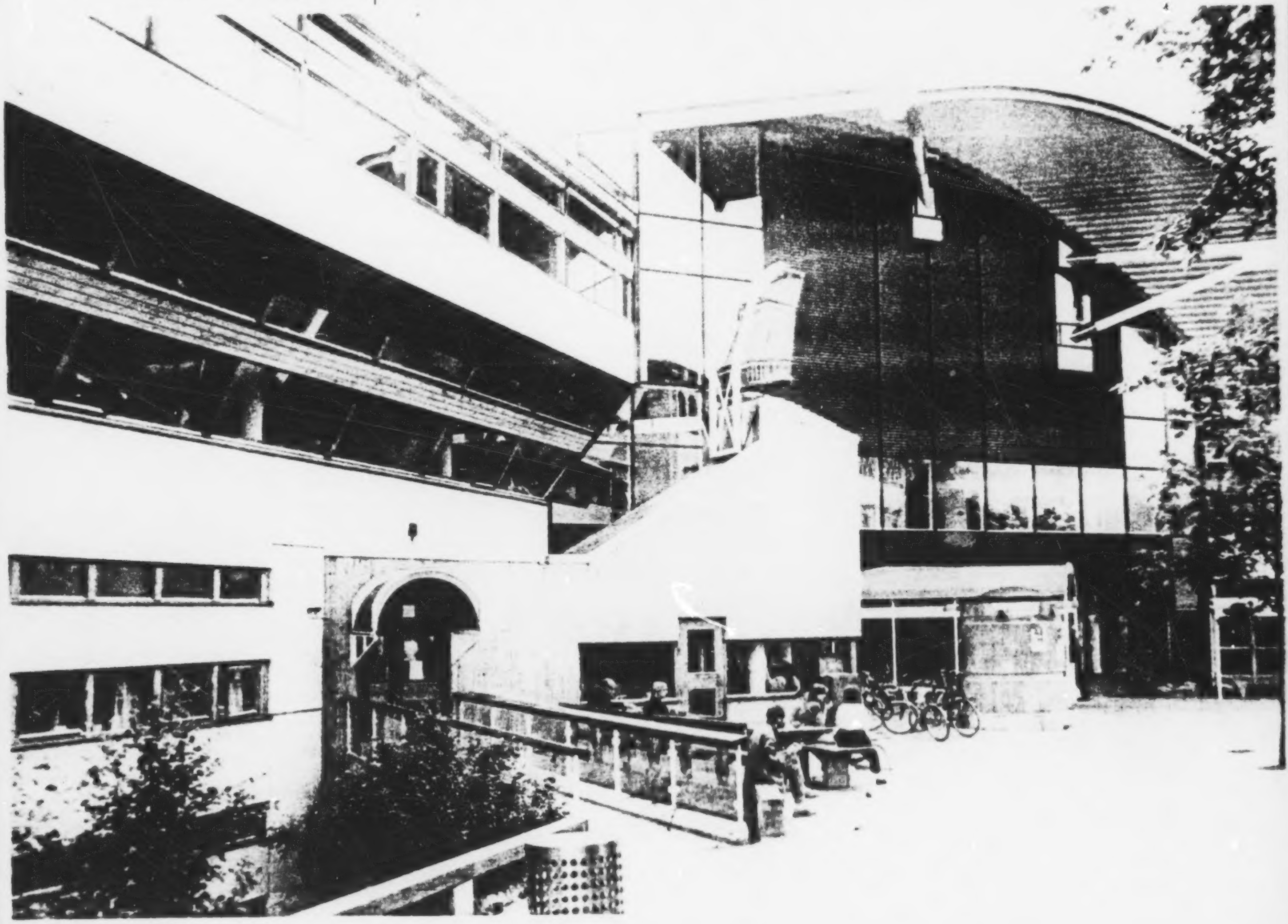


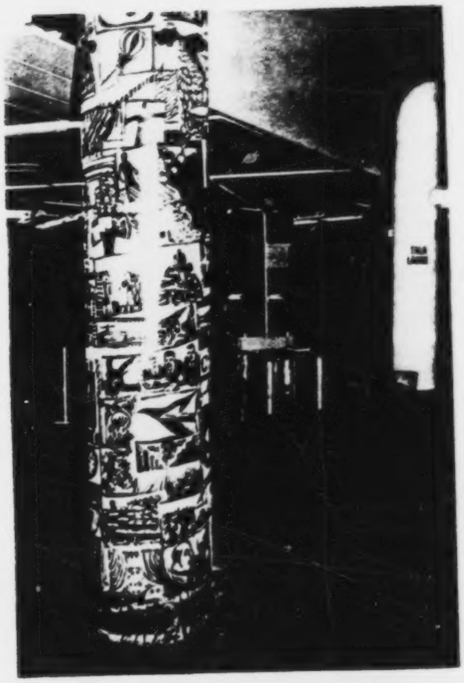
Because they are buried underground, no power lines mar the view of the long, sleek lines of the University of Stockholm Library or any other Frescati campus buildings.

Of the total 193,000 square meters that make up the University of Stockholm, 150,370 square meters—or 78 percent of the total university area—is now located at the Frescati campus. The departments of earth science, physics, mathematics and geography are still located in buildings on the university's old campus in central Stockholm.

Students with courses scheduled on both campuses must take public transportation to move between the two, and many make use of the underground train station located on the western edge of the new campus. An

View of courtyard outside the University Library, which provides exterior and interior ramps for complete access by the handicapped.



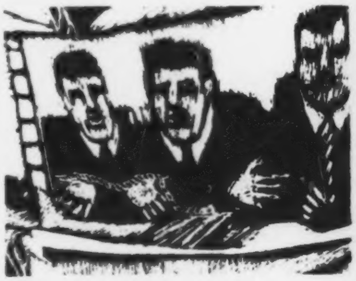


Artwork by Kerstin Abram-Nilsson decorates the two columns immediately inside the library's main entrance.

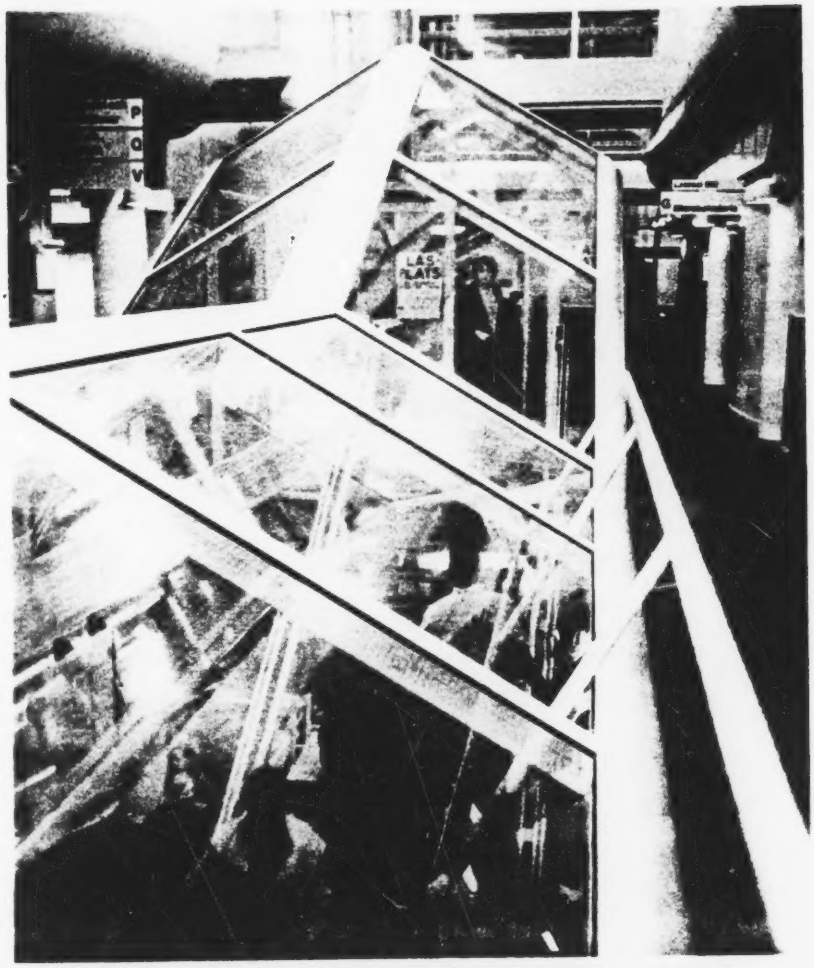
underground distribution network linking all buildings for supply delivery and other building service functions is protected from the weather and also keeps vehicles off this pedestrian campus.

Also still in use in the central city is a private 17th century palace which, unlike the rest of the state-owned university buildings, is owned by the University of Stockholm. Although the president has an office there, he rarely uses it because it is so far away. The classic old building, which houses the University's extensive collection of paintings, is now used mainly for formal meetings.

Twenty-eight thousand students are presently enrolled at the University of Stockholm which, like all the country's universities and technical schools, is free to Swedish citizens. However, all students are required to pay for membership in their school's student union, a powerful organization which runs dormitories, appoints student members to the universities' decision-making bodies and represents students' interests in a number of other areas.



Closeup of one of Abram-Nilsson's whimsically-painted columns.



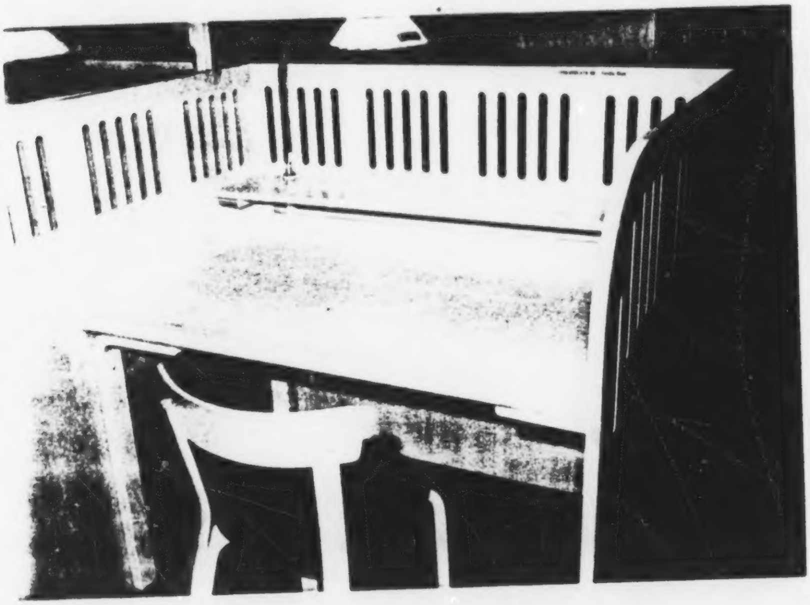
The glass-enclosed stairway meets Sweden's fire codes and harmonizes with the open ambiance of the library's design.

University of Stockholm Library Among Most Modern in Europe

The architecture of the Stockholm University Library on the Frescati campus has been compared to that of a large ship. Long and sleek, the library sets just north of Sodra Huset which is connected to it via a large entrance hall. The floors of the library are numbered to correspond to the adjoining Sodra Huset. To scale the building's 5,000 square meters to human size, architect Ralph Erskine used furniture groupings, color, and other devices to visually divide the large space into clusters of smaller environments while simultaneously maintaining the building's clean, open design. The building is divided into red, green and yellow color zones on all floors to further define the spaces.

According to University of Stockholm President Staffan Helmfrid, several thousand study spaces, including a mixture of carrels, tables and comfortable chairs, make the University Library the most popular spot on campus. Each morning at 9 a.m. students line up to lay claim their individual spaces in this sunny, modern library, the first in Europe to computerize its cataloging system. The University Library is also equipped to carry out online computer searches in both Swedish and international databases.

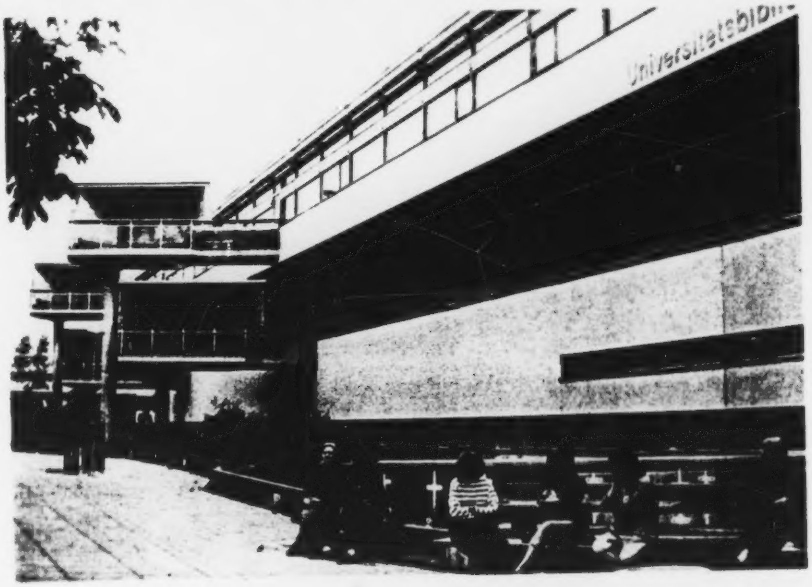
The building holds 1.2 million of the university's two million volumes, the remainder of which are located in department libraries throughout the university. Among the University Library's collection are volumes from the Library of the Royal Academy of Sciences, established in 1739, which contains one of Europe's largest collection of botany and zoology texts. In addition to stacks and study areas, the library houses administrative offices, examination rooms, research spaces and a bookstore in the lower level.



Danish modern study carrels are equipped with individual lights.

To create the library, Erskine worked with users to plan a functional but cozy structure that met two simple but difficult to implement criteria: that people should feel good inside the building, and that it be designed to bring the beauty of nature indoors. To help accomplish this, Erskine built the sunny side of the building around a cluster of oak trees, and placed many windows in the multi-level structure. A large sloping window on the third floor of the building's western side, for example, provides natural light to the library's book and reading floor. Two free-standing towers on the roof, which also contain reading spaces, add to the building's architectural interest.

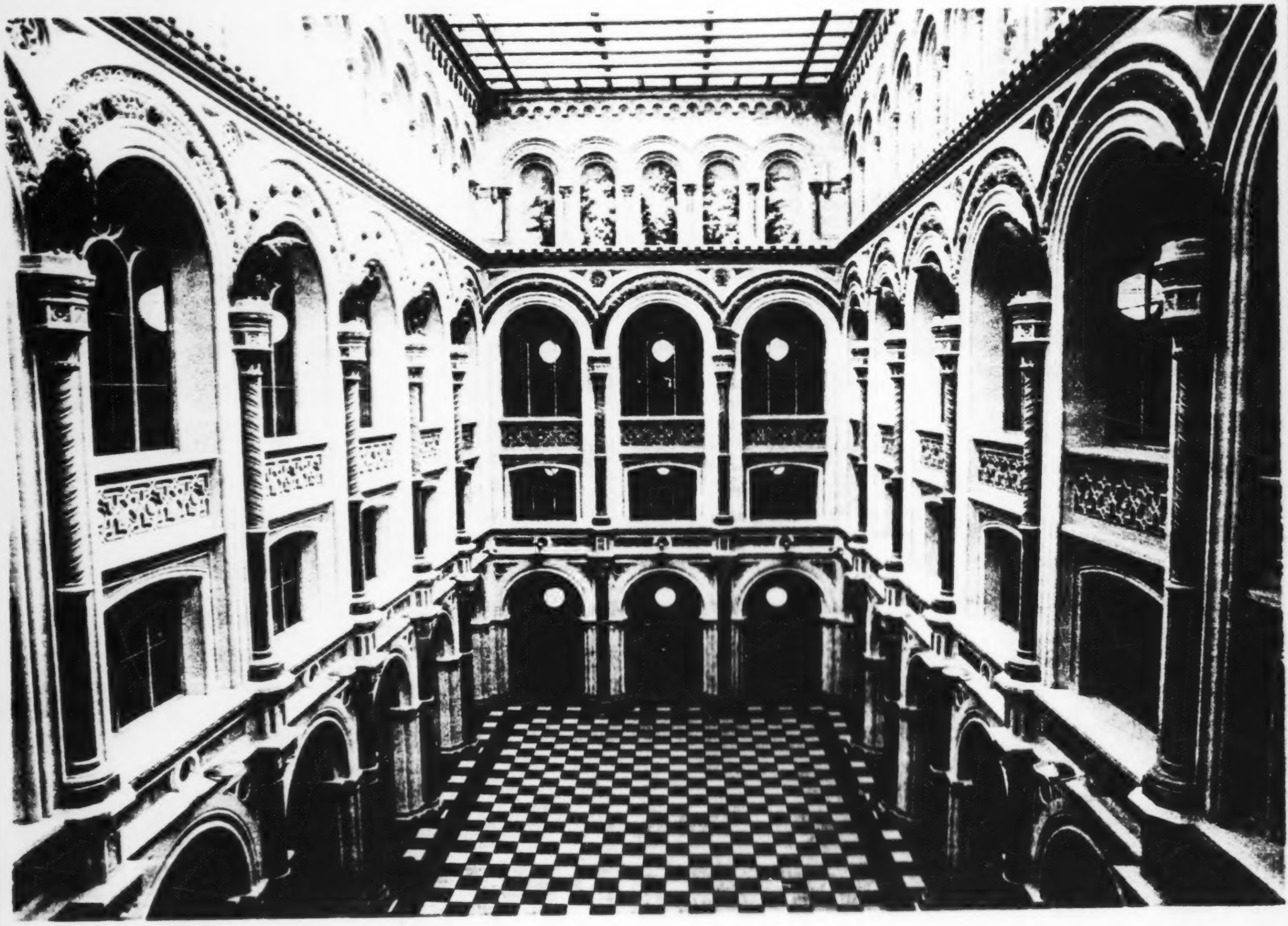
Inside, the reading room on the first floor is open to the two stories above, and the total interior, including doors, has been painted white to reflect the light brought in through the building's many windows. Earth tones of brown, red and rose-beige carpeting help delineate the various spaces within the library, and light-colored wood —mainly birch—is used for all fixed furnishings and shelves. A large, glass-enclosed staircase inside the building's lower level leads to the top floor where windows just under the ceiling provide natural illumination through all three stories.



Every advantage is taken of the outdoors by providing sheltered study space accessible only from the building interior.

UNIVERSITY OF COPENHAGEN

Students Exercise Strong Voice

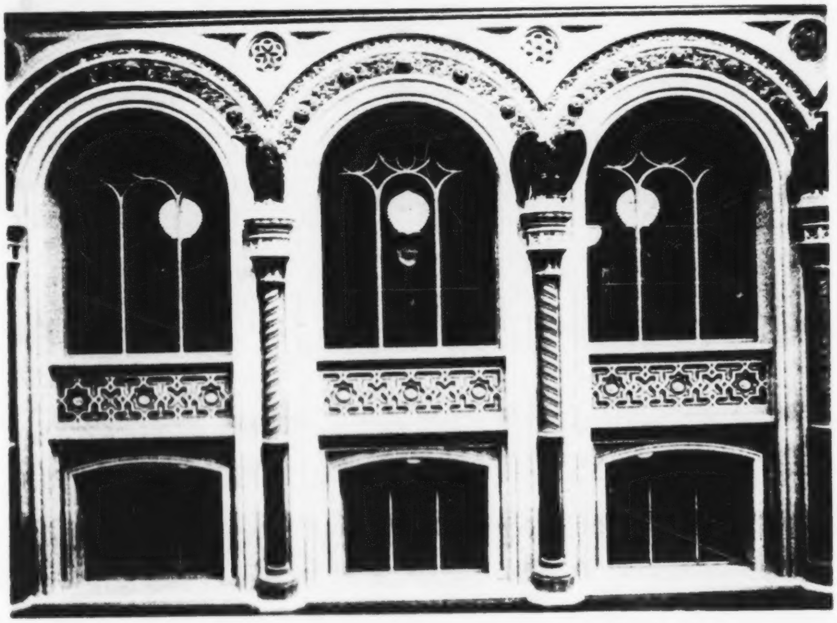


Great Room, Museum Building, Copenhagen University. Built between 1864-1870, the building created a sensation when it was unveiled to the public. The display rooms were arranged around a central hall, or great room. The architectural design was developed to feature a zoological classification system in which the lowest animals were arranged on the ground floor, the arthropods in the mezzanine, and the vertebrates on the top floor.

Students at the University of Copenhagen have enormous power, as do their peers at other academic institutions in Denmark. Danish students' demands in the 1960s for a voice in educational affairs resulted in the University Governance Act of 1970. This Act, which radically restructured the governance of all Danish universities, gave students at least one-third of the seats on all governing councils, including the Konsistorium, the universities' supreme governing body.

At the University of Copenhagen, where students revolted in 1968, the cry of "co-determination now" overthrew 400 years of what had been called "professor

Another view of the Museum Building's Great Room. Once the home for large zoological displays, it now is the site for art exhibits, receptions and other university events. The building, recently renovated at a cost of approximately 40 million Danish kroners, also houses the university's central administrative offices on its other floors.

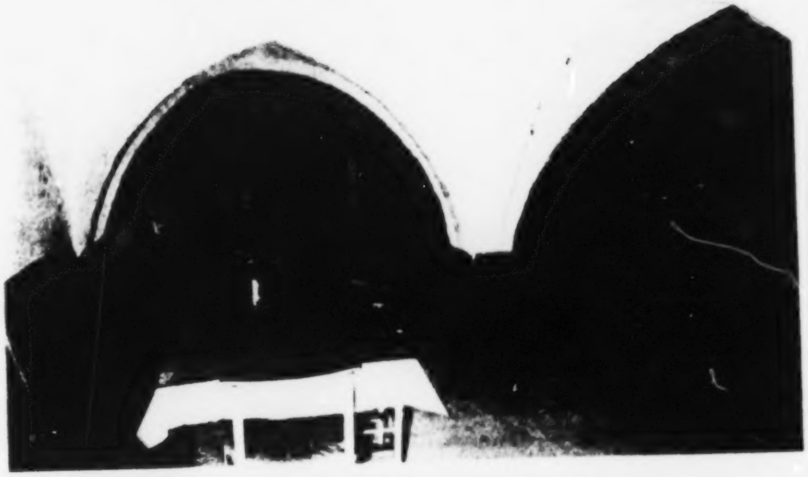


Arches in the Great Room are cement columns cleverly painted to resemble marble.

Closeup of faux marble column. Touch, not sight, reveals the deception.

This view of the vestibule facing the ceremonial hall in the Main Building reflects the Classicist style of the interior. Artists C. Hansen and G. Hilker studied Pompeian mural art before beginning to decorate the vestibule in 1844. The project took nine years to complete.

Student prisons were once common at Danish and German universities, where students sometimes used duels to settle their differences. This one in the cellar of the Konsistorium building at Copenhagen University came into use in 1626 and exhibits a medieval style. Still a prison in the mid-1700s, it is described in university records of that era as a place for "the punishment of graceless and stubborn students." The Konsistorium building itself, which dates from the early to middle 15th century, is believed to be the oldest building in Copenhagen.



rule." In its place, study committees were set up with a 50/50 representation of faculty and students to determine course content, methods of examination and grading, and other academic issues.

This 50 percent representation on study councils was incorporated into the University Governance Act and is in effect at all Danish universities. A 1973 amendment to the Act gave teachers 50 percent representation in the administrative councils, while students and workers each hold 25 percent of the seats. This modern turn of events is quite a contrast to the expectations of the first students enrolled at the university who—meekly, it can be assumed—showed up for 6 a.m. lectures on canon law.

As with other ancient European universities, the founding of the University of Copenhagen was linked with the spread of Christianity by the Roman Catholic Church. Pope Martin V in 1419 issued a papal bull giving permission to Danish King Erik to establish a university to teach law, medicine and the arts with the terms that it be established within two years. King Erik, busy fighting wars, missed the pope's deadline and failed to reapply.

It took nearly 50 years for a new monarch to approach a new pope in the name of higher education. In 1475 at the request of King Christian I Pope Sixtus IV

Street scene at Copenhagen University, where academic and administrative buildings are scattered through the old central city.

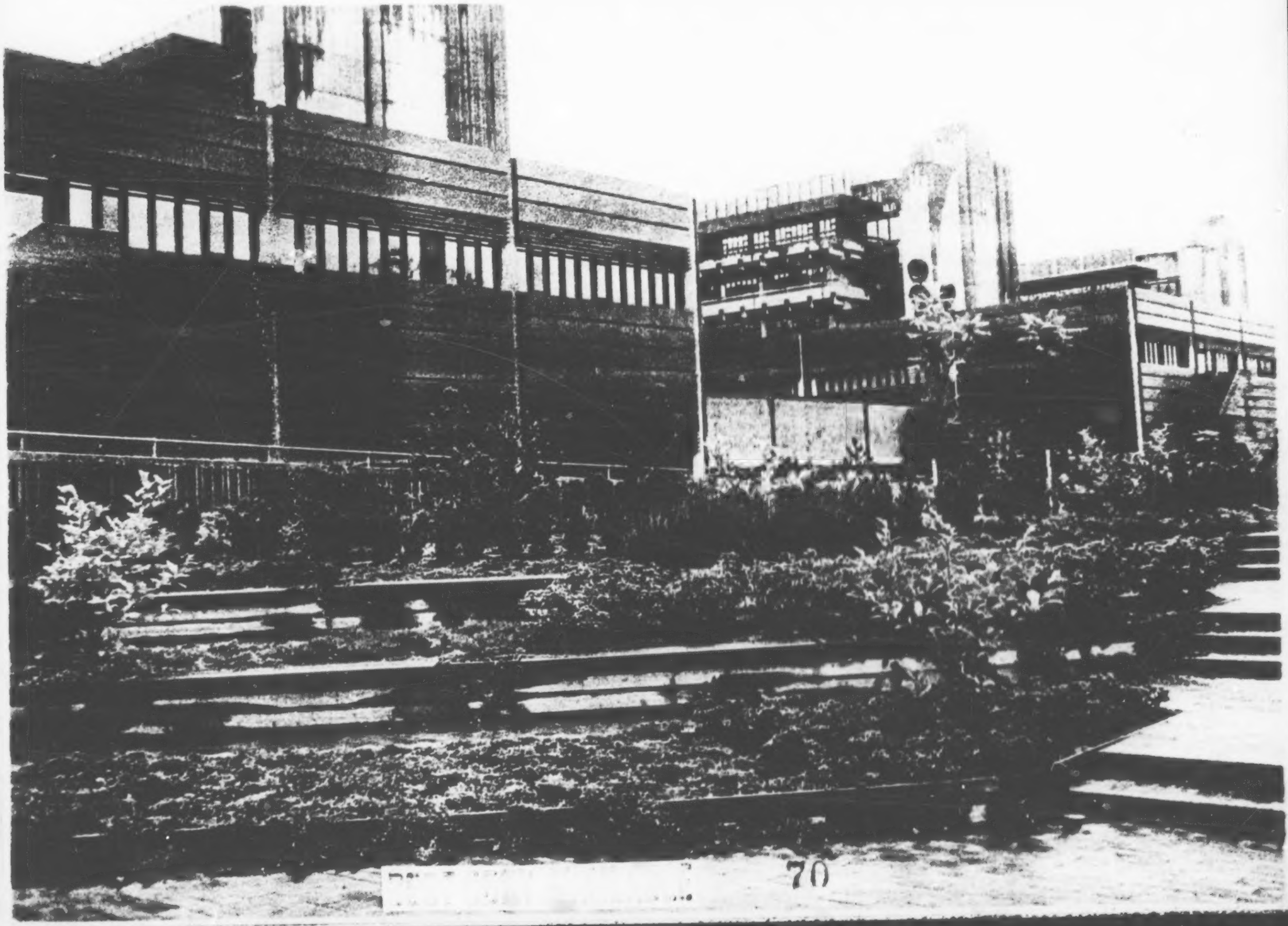
issued a papal bull establishing a university to teach theology in addition to law, philosophy and medicine. This time around there was no short deadline, and four years later King Christian inaugurated the university in Copenhagen.

Presently, more than 30,000 students attend the University of Copenhagen, many of them on a part-time basis. Like their counterparts at other Danish universities, they pay no tuition but must pass the *studentereksamener*, an examination given to students graduating from *gymnasiums*. The equivalent of a junior college in the United States, a *gymnasium* prepares students for further study at a university or technical school.

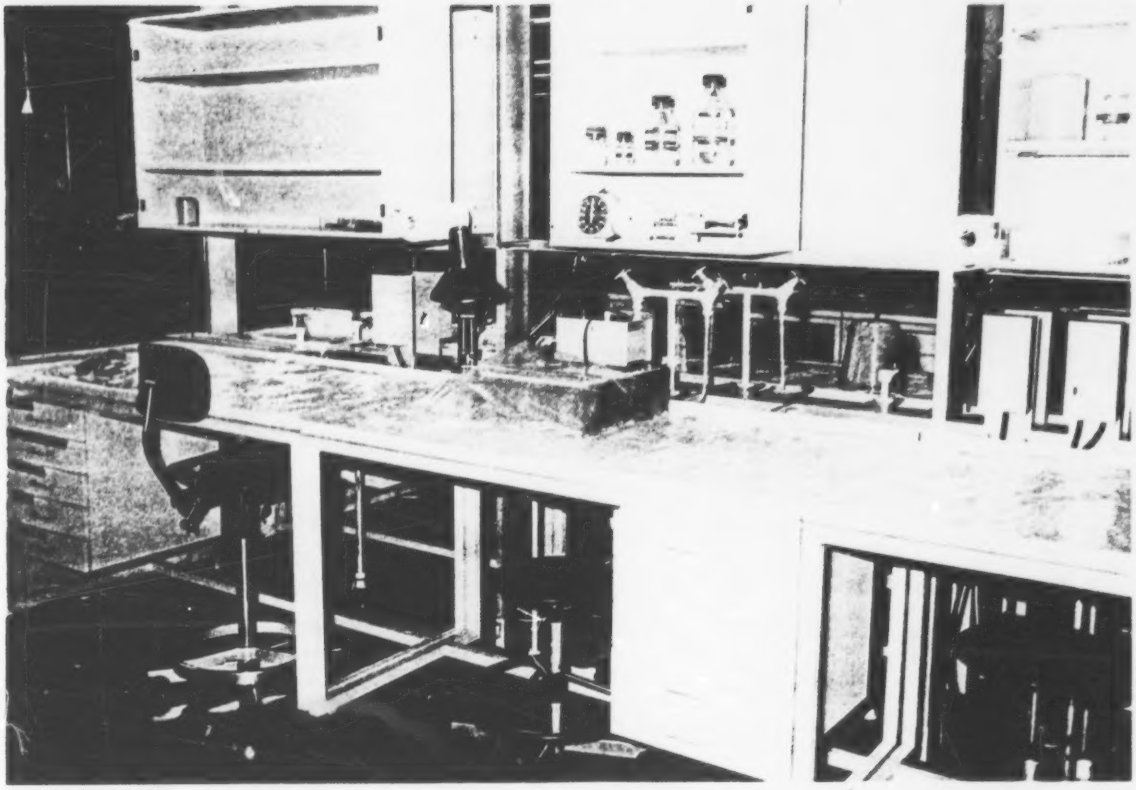
University of Copenhagen's Panum Institute—Modular Design Provides Flexibility

Designed by the architectural team of Eva and Nils Koppel, the Panum Institute, built on the site of the former Blegdam Hospital, houses the University of Copenhagen's Royal Dental College and its medical research and teaching facilities. The six-story building was constructed in stages between 1970 and 1986 at a cost of $300 million, including equipment. The Institute, which features a stark, modular design, is named for P. L. Panum, a nineteenth century Danish physician and scientist who founded a modern laboratory for experimental physiology.

Terraced walkways lead to this entrance of the Panum Institute, whose tall buildings face Rigshospitalet and Tagensvej streets.



This Panum Institute lab provides a host of flexible features.



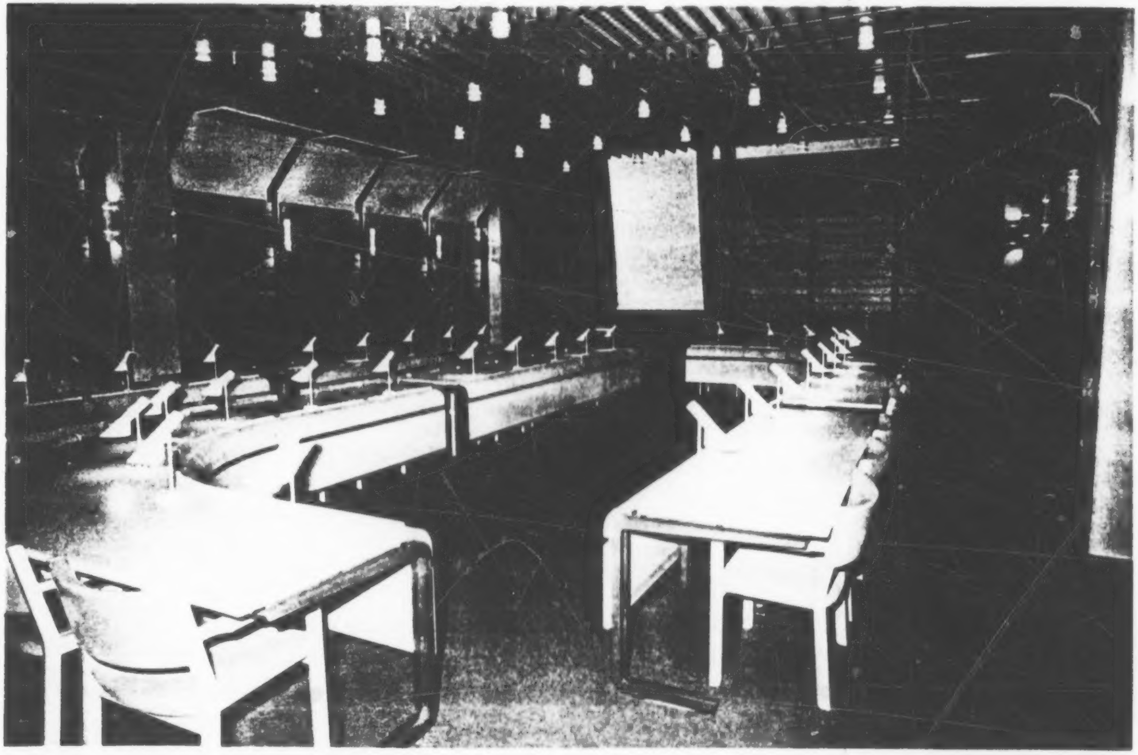
The first wing of the 1,150,000 square-meter building was completed in 1974 and, as construction progressed, those using the building helped plan the space. As a result of their suggestions and the architects' sensitivity to these users' needs, the design is both attractive and flexible.

Portable walls made of gypsum can be readily moved to enlarge or shrink teaching and lab areas as needed. A flexible system of electrical outlets and utility services facilitates the quick installation and movement of portable equipment. Easy to reach networks running beneath laboratory floors carry lines for compressed air, water and gas. And, among other flexible features, a crawl space between the building's false ceiling and the top ceiling provides access to lighting and utilities so that

Surrounded by low buildings, this courtyard is enlivened with trees and other greenery.

they, too, may be serviced or changed with little difficulty.

Research areas are located in the Institute's tall buildings, while classrooms, most offices, student areas and the cafeteria are in the long, low buildings that face a terrace. The main corridors in the low buildings are a quarter of a mile long, but the distance is visually segmented by bright colors and art—some of which is built into the walls. Like other public and university buildings in Denmark, at the Panum Institute a percentage of the government funds allocated for construction were set aside, by law, to purchase works of art. The bright, clear colors inside the building soften its principally concrete construction.



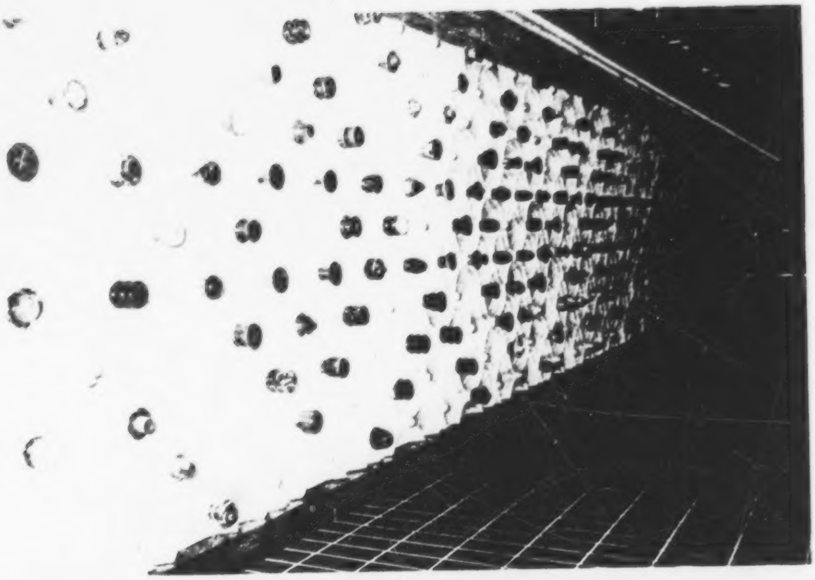
Wood on the walls and ceiling and the clean, simple lines of the Danish design furniture create an open feeling in this enclosed windowless space.

This fanciful statue of the human body in a lobby of the Panum Institute was purchased with part of the building funds.

An important occupant of the Institute is The Royal Dental College, which, according to Rector Jan Jacobsen, serves the needs of 2,000 patients, students and staff each day. In addition to 400 dental students—the majority of which are women—the College also trains 200 clinical assistants and 100 hygienists. Dental graduates must work for a year with an experienced dentist before going into practice for themselves.

Plans for the Royal Dental College were changed three or four times before construction began because an oversupply of dentists in the mid-1970s—due mainly to the successful nationwide implementation of a preventive dental care program—necessitated a 50 percent cutback in the number of dental students. To cope with the need to train fewer dentists, the College began a program called "Face to the Future" which emphasizes intensive, high-quality training of dentists, clinical assistants and hygienists. This reduction in the number of students also means that the College treats fewer patients than originally planned.

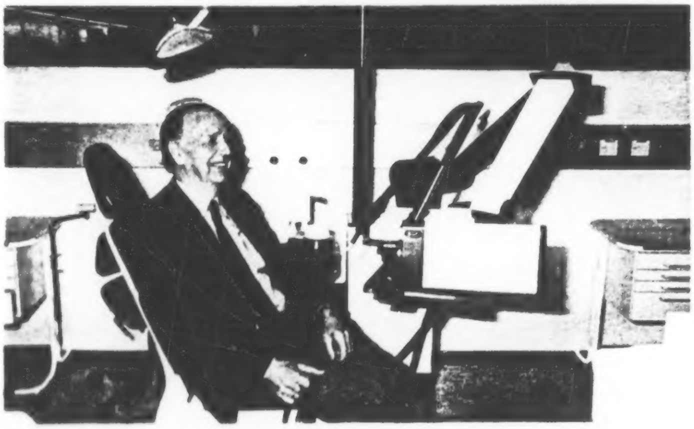
Dental care in Denmark is free through the first 12 years of school. After that, citzens must pay for care unless they participate in a dental school program. These factors, combined with its high level of care, makes the Royal Dental College a popular option: 8,000 to 10,000 people annually apply for the free care the College provides. All those requiring emergency care are treated; patients requiring ongoing treatment are chosen based on which applicants best meet the College's teaching needs.



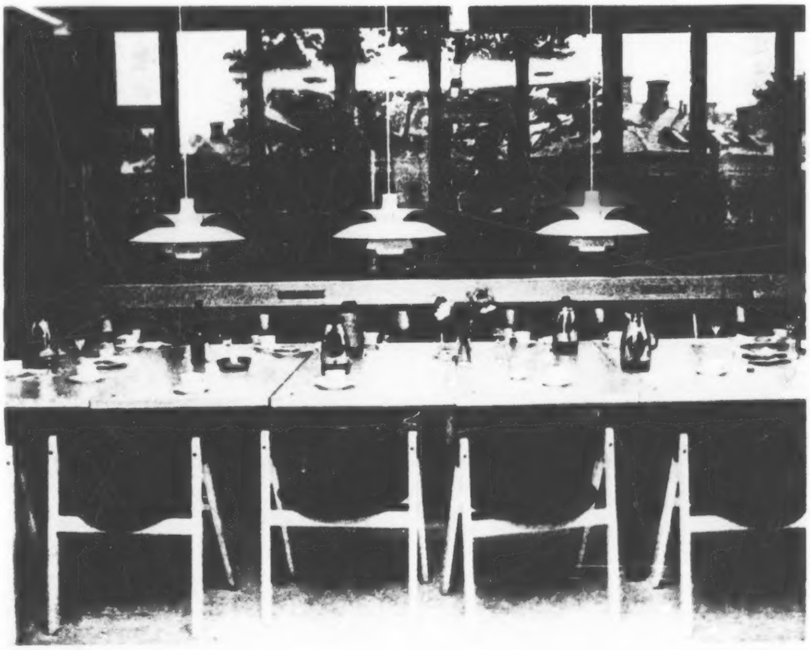
The ceramic knobs in the wall of one of the Panum Institute's corridors add visual interest to what would otherwise be a long, dull space.

View of the lower level of the library at the Panum Institute.

Like the other areas of the Panum Institute, The Royal Dental College is bright, clean and flexible. A combination of fluorescent and incandescent lighting provides well-lit work areas. A balanced air distribution and exhaust system that vents to the roof ensures that lab and patient areas are clean and odor-free. Because of the building's flexible system of walls, plumbing, electricity and equipment, rooms can be rearranged easily to meet the changing needs of patients and staff.

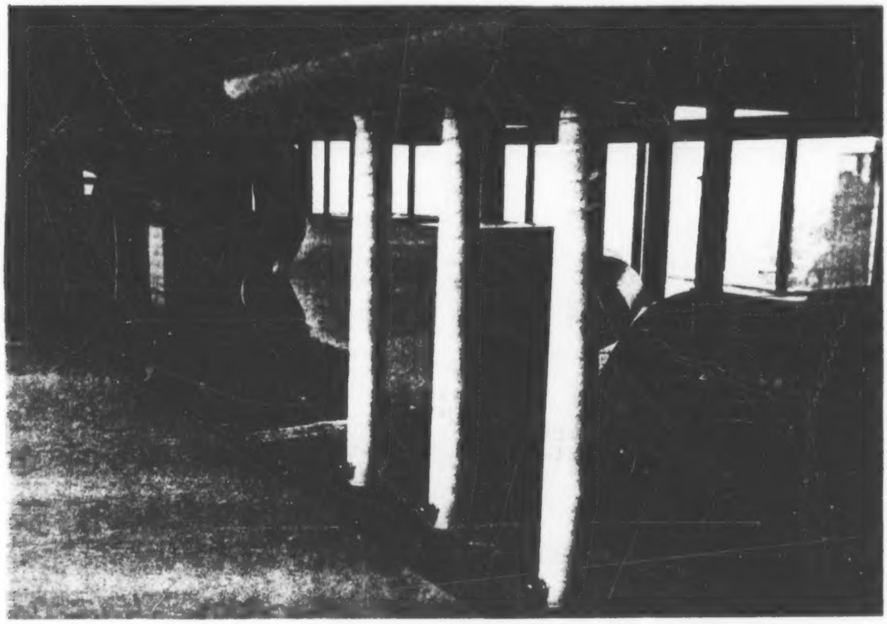


Preben Larsen demonstrates the comfort of patient facilities at the Royal Dental College located in the Panum Institute.



Incandescent and fluorescent light fixtures are used for accent and utility.

As a result of its thoughtful, innovative design and its high-quality, low-maintenance materials, the old and new areas within the Panum Institute are virtually indistinguishable. Lecture halls, for example, that have been in use for 10 years look as clean and contemporary as the rest of the building. According to Rector Jacobsen, those who occupy it have only one criticism of the Institute, and he agrees that it's a valid complaint: The distances within this modern complex are immense.



Like the other areas of the Institute, the mechanical room at the top of one of the six-story buildings features clean, bright and readily-accessible equipment.

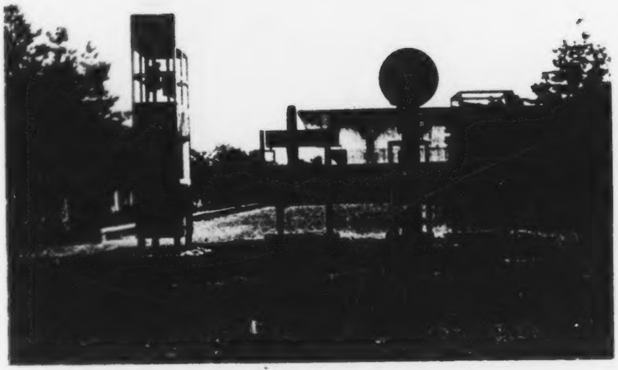
TECHNICAL UNIVERSITY OF DENMARK

A Hotbed of Scientific Research

This classroom building at the Technical University of Denmark makes extensive use of glass to bring the outdoors inside.

Located on the site of an old airfield 10 miles north of Copenhagen, the Technical University of Denmark has more than 70 buildings on its 250-acre campus. The school, which has been moved several times since its founding 150 years ago, has been at its present site since 1973.

About 1,000 students are enrolled in the university's 69 institutes, laboratories and departments, most of which fall into the general study areas of computer science, physics and mathematics, and chemical,



This modern sculpture complements the stark design of the buildings on the campus of the Technical University of Denmark.

electrical, civil and mechanical engineering. A new super computer facility has recently been constructed and is now occupied. Teachers on the staff at the Technical University include 15 fulltime engineering faculty members and a much larger number of research associates paid by contract work.

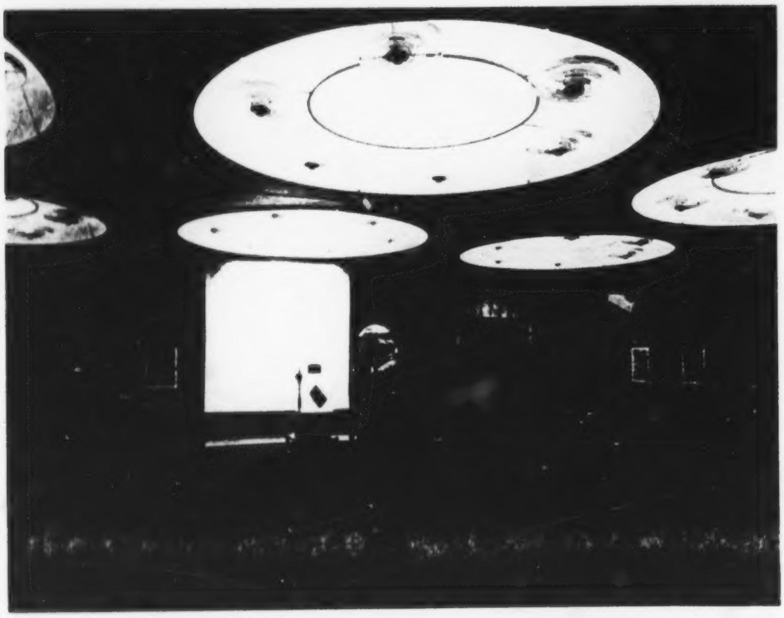
Those engaged in all areas of study at the Technical University are involved in either pure or applied research. Students work with faculty members on practical as well as theoretical projects to gain experience in solving different types of problems. An Industrial Projects Liaison Office facilitates partnerships between industry and the Technical University by providing help in developing research ideas, locating qualified personnel and assisting with paperwork associated with administering projects.

A number of small departments carry out a variety of research projects and provide practical and theoretical coursework for students. For example, acoustics laboratory projects are directed toward improving acoustical measuring techniques and creating better acoustical environments. The laboratory staff conducts independent research and also collaborates with other scientists on such projects as controlling noise in ships and the use of digital signal processing in acoustical measurement.

Trees and shrubbery nearly disguise the utilitarian function of this parking area at the Technical University. Permitting grass growth between stones in some parking areas also helps create an aesthetically pleasing appearance.

Another unusual feature of parking lots and walkways at the Technical University is the use of hand-laid quarried Scandinavian stone. Initially costly, the stone provides a permanent durable surface requiring limited maintenance.

Water lilies decorate a pond at the Technical University of Denmark.



Rounded fronts of conference tables complement the circular light fixtures in this meeting room at the Technical University of Denmark.

A unique project at the Technical University is the combined heat and power generating unit which meets nearly all the university's heating needs. Built in 1986, the pulverized coal-fired unit is unmanned. It is monitored electronically by a computer-hookup via telephone lines from Kyndby, another nearby power station. The unit is indirectly fired with pulverized coal brought by truck in closed containers from pulverizers at the Kyndby unit. An important environmental advantage of this combined heat and power generating unit is a substantial reduction in the emission of dust and sulphur dioxide.

ADDENDUM

The Ohio State University Plan for Improving the Quality of the Campus Environment

This overview of The Ohio State University Plan for Improving the Quality of the Campus Environment was previously published in *The Best-Laid Plans: Components of Quality Campus Environments*, a report on the First International Symposium on Preserving a Quality Environment for Learning held in Columbus, Ohio, October 1–3, 1986. It is included in this publication as a courtesy to those who did not receive the 1986 report. A brief description of the universal nature of this Plan—components of which were evident on the European campuses visited—is in the introduction to this publication.

The Ohio State Plan is based on a 1986 study by The Ohio State University Physical Facilities, Equipment and Library Committee for the North Central Association Accreditation Process, chaired by architecture professor Paul E. Young, Jr. Results based on personal interviews with more than 500 students and 240 faculty members support the idea that the university community believes the physical environment of the campus positively affects the quality of teaching and learning.

The study found that campus buildings and grounds support learning in two ways: directly, by serving as repositories of information; and indirectly, by encouraging a spirit of creative discovery among students and faculty.

Based on its research, the committee proposed a number of strategies that university planners can implement to maximize the potential of their campuses as quality environments for learning. The strategies can be implemented through minor projects such as routine maintenance, and through major projects such as large capital improvements involving new construction, additions, and remodeling.

The following recommendations are part of The Ohio State University Plan for Improving the Quality of the Campus Environment. Developed specifically for Ohio State, the Plan's strategies are quite "portable" and most can be implemented on other campuses.

To prepare the necessary material for an architect or planner to carry out the strategies, it is important to have available as resources the history of campus buildings, the university photography collection, the campus map collection, and university archives. Monographs focusing on specific components of the campus are also helpful.

Components of The Ohio State University Plan:

I ■ Providing a unified academic community.

Providing a unified academic community relates to basic planning decisions that influence the arrangement of disciplines on campus as well as architecture and landscape architecture principles such as the achievement of a sense of order, rhythm, balance and harmony.

At The Ohio State University, strategies for achieving a unified academic community include:

a. Grouping basic disciplines around a central green space.

At Ohio State, this green space is the 27-acre Oval which serves as the university's central park—a memorable open space at the heart of the campus. Obviously, not all disciplines represented at such a large university could be directly positioned around our central space. However, the plan calls for actual or symbolic placement of all basic disciplines around the Oval.

b. Grouping applied disciplines in a secondary concentric zone around the central green space.

These applied disciplines shall be placed near the basic disciplines to which they are related, and organized into identifiable areas connected to the Oval by carefully designed vistas, landmarks and networks of paths.

c. Creating an identity for each major discipline.

Each discipline area or group of disciplines should have its own "sense of place" created by quadrangles, landmarks, gateways or other methods of enhancing that part of campus. These areas should also be related to the Oval by designed vistas, landmarks and networks of paths. It is important that these disciplines have separate identities that are also part of the total campus.

d. Creating an integrated network of memorable outdoor spaces.

A major design consideration of each new construction should be the extent to which an existing campus space can be enhanced or a new space created. These spaces should be identified with a discipline or an important campus activity and be part of a network of paths and spaces contributing to an overall sense of unity.

e. Developing the Olentangy River area as a unifying aesthetic asset to the campus.

The Olentangy River appears to be the west boundary of the central campus. However, because disciplines such as agriculture and veterinary medicine are west of the river, it actually splits the campus near the center. As is the case with many campuses having river sites, Ohio State, until recently, has considered the river to be a liability rather than an asset. The 1962 master plan proposed exploring the aesthetic potential of the river. Drake Union, constructed in 1972, is an example of a building that makes creative use of the river site in its location and design.

f. Creating campus boundaries that serve the overlapping interests and needs of the university and the city.

Although there is an internal logic to locating service, parking and athletic/recreational activities at the edge of the campus, care must be taken to prevent conflicting interests where the university and the community meet.

Logical fulfillment of this strategy will result in the location of services and heavy research facilities where the campus borders city industrial zones; student housing and community-related functions where it meets residential areas; and museums, galleries, and auditorium functions where it meets the city commercial districts. This strategy is currently being carried out effectively along North High Street where the Wexner Center for the Visual Arts has precipitated major public and private improvements along the east side of High Street, and where the Ohio Union Parking ramp has been made available to High Street traffic.

2. Developing a pedestrian campus.

A quality learning environment is enhanced by the ability of the residents of the university community to move freely through the campus, to enjoy campus spaces and to engage in activities undisturbed by the confusion and hazards that occur when vehicles and pedestrians share space.

Strategies for achieving a pedestrian campus include:

a. Providing horizontal or vertical separation between circulation routes used both by pedestrians and vehicles.

This strategy requires that facilities for pedestrians be separated from those for vehicles, either through their separate placement or through the development of bridges or tunnels separating them where their routes would otherwise conflict. The pedestrian bridges over Cannon Drive are examples of successful implementation of this strategy.

b. Locating parking facilities at the perimeter of pedestrian areas.

Siting parking facilities away from pedestrian areas eliminates the need for developing extensive vehicle circulation systems to avoid penetrating pedestrian areas.

c. Developing high capacity vehicle routes that bypass the pedestrian campus.

A free-flowing, high capacity roadway around the campus perimeter enables all commuters to easily reach their destinations. This type of circulation pattern also reduces the number of locations where pedestrian and vehicle paths cross.

d. Considering the pedestrian campus concept in the design of service areas.

This strategy recognizes that regardless of location most campus facilities require some vehicular access for services such as deliveries, trash pickup and maintenance. All service courts, access routes and delivery entrances shall be designed to minimize conflict with pedestrian paths.

e. Establishing a pedestrian character on campus while simultaneously accommodating necessary vehicle traffic.

Some vehicle access will always be necessary to virtually all parts of the pedestrian campus. However, the number of specific routes should be limited and access routes servicing infrequent vehicle needs should reflect a definite pedestrian character.

f. Scheduling vehicle activities and establishing time limits on vehicle movement to periods of low pedestrian use.

In general, few trips should be scheduled during normal class hours and consideration should be given to a ban on vehicles in pedestrian areas during class change periods.

3. Enhancing the university's sense of heritage and tradition.

A campus that reminds its residents of its roots in human history offers a sense of historical place basic to a setting for scholarly inquiry.

a. Accommodating new space needs by restoring and reusing existing historically significant buildings, and constructing new buildings and additions that are

architecturally harmonious with their surroundings.

At Ohio State, many well-known campus structures such as Orton and Hayes Halls, built shortly after the university's founding, have been sensitively rehabilitated to serve modern needs. Other less distinguished but still significant older buildings which previously were scheduled for replacement have been—or are scheduled to be—rehabilitated. The recent addition to the William Oxley Thompson Library is an example of a building extension that harmoniously relates to the existing structure.

Relating closely to the concept of providing a unified academic community, this strategy demands that all remodeling and new construction contribute to the overall unity of the campus as well as the enhancement of the sense of heritage and tradition.

b. Reflecting the heritage of historically significant sites in each new design.

A statement of the history and development of each site shall be included in the requirements for each capital improvement project. This statement, which includes photographs, maps and—where applicable—drawings and sketches, provides the architect or landscape architect a background from which to create literal or symbolic references that enhance the heritage and tradition of the site.

The Wexner Center for the Visual Arts illustrates one response to this strategy of reflecting the heritage of significant sites in new facilities. The memory of the Armory, burned in 1958 and razed in 1959, was preserved symbolically in the reconstructed brick towers as well as in the landscape trace of the Armory's plan.

c. Creating interior and exterior architectural and landscape architecture projects that commemorate distinguished university alumni, faculty and staff.

Similar to the reflection of the history of the site, this strategy enhances the heritage of the university through commemoration of the contributions of individuals from the academic community. Descriptions of commemorative requirements shall be part of the program for selected architecture and landscape projects. However, departments are encouraged to propose commemorative projects independent of their capital improvement program.

d. Developing an inventory of commemorative project designs for consideration by potential donors.

Using both inhouse staff and associate architects, landscape architects and designers, the university should develop an inventory of commemorative projects to be implemented as donors are identified. The projects need not be designed in detail. Creation of the inventory should incorporate strategies related to other concepts in these guidelines.

4. Supporting the learning process.

Campus buildings and grounds support learning both directly as repositories of information and indirectly through an environment that encourages a spirit of creative discovery among students and faculty.

Strategies for implementation include:

a. Incorporating an aspect of the discipline served in each new design.

Orton Hall, the geology building, is an excellent architectural illustration of the integration of an aspect of a discipline within the design of the building serving that discipline. The geological theme of Orton Hall includes the use of Ohio stone arranged in the same relative position as it occurs in the bedrock of the state.

The red sandstone grotesques located just below the tower's conical roof are derived from prehistoric creatures that once lived in this part of the world, and both interior and exterior sculptures include fossils as well as mythological images of man. Chadwick Arboretum, which extends throughout the campus, is another example of the integration of a university discipline into a landscape architecture design.

b. Creating interior and exterior study areas appropriate for the disciplines served.

Public lobbies and corridors as well as designated study spaces are included in this strategy. Thoughtful consideration to microclimate, along with the design of appropriate furniture and furniture groupings, permits the use of outdoor study space during all but the coldest months.

c. Establishing exhibition and display areas and special learning spaces as part of the program for all major capital improvements.

Museums and galleries are clearly important to a university's environment. In addition to encouraging capital improvement projects that specifically serve these functions, this strategy requires that these activities be considered in the design of each major project. It is especially important that such space be provided in the areas that serve disciplines. Although separate space may not always be allocated, both public and private programmed spaces should encourage exhibitions and informal teaching opportunities.

d. Incorporating academic themes in routine architecture and landscape architecture designs.

One way this can be accomplished is through the use of designs that trace the development of a discipline throughout its history. Representatives of each discipline are encouraged to propose academic themes to be used in new designs that are available to prospective donors and thus independent of capital improvement programs.

e. Creating indoor and outdoor spaces that encourage the exchange of ideas.

These spaces for interaction should be considered in the design or redesign of each corridor, lobby, entrance, and other public places.

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